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NOTICE TO AUTHORS

Before submitting manuscripts for publication authors should consult **Information for Contributors** to the Journal of Speech and Hearing Disorders, *JSHD*, 14, 1949, 93-94. Prospective authors are invited to write the Editor for copies of this Note, and of its supplement, **Examples of Manuscript Form.**

Auditory Communication

Hallowell Davis

SPEECH AND HEARING have an obvious unity. They are both steps in the process of auditory communication. Auditory communication is broader than mere speech correction or assistance to the hard of hearing. It is a part of communication in general. The important generalized idea of communication has only recently made its appearance in full scientific regalia, with a special vocabulary and mathematics. We now speak of 'Cybernetics' and of 'Communication Theory.' Few of us are interested in or are capable of understanding the mathematics of Wiener (7), Shannon (*6*), Gabor (*1*), or McCulloch (*3, 4*), yet therein lie the greatest unifying ideas in the academic areas of speech and of audiology. Everyone working in these areas should know that the concept of *information* has been expressed in precise mathematical form and is taking its place where it belongs with *matter* and *energy* as a third great component of our universe. They should not be jealous of the nuclear physicists and the astronomers with Einstein's magic formula relating matter to energy. *Information, order, action directed toward a goal:* these are ideas no less potent with which to conjure.

Hallowell Davis (M.D., Harvard, 1922) is Director of Research, Central Institute for the Deaf, and Professor of Physiology and Research Professor of Otolaryngology, Washington University. This article was prepared under Contract N6onr-272 between the Office of Naval Research and Central Institute for the Deaf, and is adapted from a paper presented at the 1950 Convention of ASHA, Columbus, Ohio.

Active progress is being made in this kind of over-all analysis and synthesis. Without attempting to expound the principles of cybernetics or to explain the relation of information to the 'entropy' of the physical chemist, I venture the prediction that we will one day look back on the post-war era of 1945-1950 as marking the beginning of a development in the non-material sciences as important for psychology and biology as relativity and the quantum theory have been for the material sciences of physics and chemistry.

Some of these generalities are explained and illustrated by a diagram of the process of auditory communication (Figure 1). This shows how *transmission of information,* like the matter and energy that constitute our bodies and our telephone systems alike, cuts across the disciplines of physics, anatomy, physiology and psychology. To understand the process of auditory communication we must know something of each of these disciplines. Each of us may be more expert in one than in another, but we must be able to use the language and the principles of all three in our thinking.

An idea starts in the mind of the talker, in the realm of psychology. An idea is hard to define. It may be something as simple as 'It is too hot in here' or 'I don't like that necktie.' If you decide to communicate this idea to someone you somehow formulate this idea into language, still at the psychological level although presum-

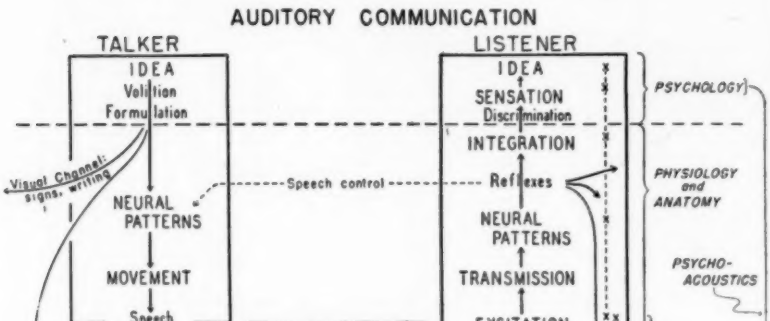

FIGURE 1. Diagram of the process of auditory communication.

ably involving operations of physiology in your brain. The message emerges clearly into physiology and anatomy as nerve impulses stream over certain nerves and cause a complicated series of contractions of muscles. We can describe the action more clearly at the next stage, which is the movements of tongue, jaws, larynx, etc., and in the final output, the series of sound waves that issues from the mouth. The message has emerged in this physical form and has entered the channel of audio communication, the air between you and your listener. Here we can study and describe the message in some detail as a pattern of physical events occuring in time. The events occur in a single channel. A certain wide but finite band of frequencies is involved, the familiar speech-band of frequencies from about 100 to about 5000 cycles per second. The intensity of the energy involved varies continuously over a range of many decibels. But in this physical phenomenon of sound (described in these physical terms), the message (the information) is carried. The sound may be transformed into a corresponding pattern of electrical events, as in a telephone or a hearing aid, and back again into sound waves if we wish. In such transformations, however, the basic code remains the same. We still have a single channel, and the frequencies and the relative intensities remain the same as in air.

We have learned a great deal, incidentally, from studies of how much the range of frequencies and the range of intensities can be reduced in the electrical channel without losing the message. Very interesting also has been the successful attempt to translate the audio signals automatically to visible signals and thus convey information through another sensory channel, namely vision. I believe that the greatest contribution of the

'Visible Speech' (*5*) of the Bell Telephone Laboratories will be through the analysis of the structure of speech and of what aspects of speech are essential for the successful transmission of information rather than through any *practical* application, either in speech correction or in teaching speech to the deaf.

In normal auditory communication, however, the sound waves enter the ear, mixed with more or less of the ambient sound always present in the common channel that connects the talker and the listener. The ambient sound, incidentally, may be informative in its own right or may interfere with the message by masking the speech, or in extreme cases it may even be injurious to the ear. The ear analyzes the speech sounds and recodes the information in the form of nerve impulses in the fibers of the auditory nerve. The processes now are physiological, and the channels (*i.e.*, nerve fibers) are described in anatomical terms. The nerve fibers converge in the nerve centers and the nerve impulses interact in various ways and in various places in the gray matter of the brain. Our knowledge of both the physiology and the anatomy is still elementary but at least it is increasing day by day, and some important principles are already clear. The greatest gaps in our knowledge lie at the highest level where the information finally emerges in the mind of the listener as an idea more or less closely corresponding to the idea that originated in the mind of the talker. The point is that the information gets through, and we know therefore that the information was present, coded in one way or another, at each point along this elaborate pathway. This fact is of the utmost importance as a unifying principle and as a guide to identifying and understanding the essential features of the various steps along the way.

The broken line in Figure 1 labeled 'speech control' refers to what happens as the talker hears the sound of his own voice. This 'monitoring' is essential to good normal speech. The deaf, deprived of this monitor, have great difficulty in learning to speak intelligibly. Other sensory channels, tactile or kinaesthetic, must be substituted. The substitution is very imperfect and incomplete, and communication by speech is a real task for them. It requires much conscious effort to mobilize and use these substitute mechanisms of control. Here, in the principle of 'feedback' and control, i.e. the continual automatic directing of action toward a goal, is one of the central ideas of cybernetics. The goal toward which the action of speech is directed is the production of signals that can be understood through the ear of a listener. We speak much better if we are continually informed as to the success or failure of the nervous messages to our muscles of speech in producing sounds that are actually intelligible to ourselves. The interference produced when the 'side-tone' returning to the talker is artificially delayed, shows dramatically how seriously speech can be disrupted by tampering with this automatic control.

The inner ear transforms the patterns of speech sounds into corresponding patterns of nerve impulses. How do we study this process? The tools include the wave analyzers and sound level meters of the physicist that enable us to describe quantitatively the sounds that we use as stimuli. We take advantage of the art of the electro-acoustic engineer to produce known and relatively simple patterns of sound waves such as pure tones, 'white' noise, and clicks, of

definite frequencies, intensities and time relations. We also need the dissecting tools and the microscope of the anatomist to learn something of the structures that move under the influence of the energy of sound. Physical studies of the mechanics of the ear and of properties such as the mass and the stiffness of the moving parts help us to predict their probable behavior; and some skillful investigators such as von Békésy have made direct physical observations of many of these movements. We are now quite sure that movement of the delicate basilar membrane and the organ of Corti that rests on it is an essential step in the process of audition. We also know that, by virtue of the special anatomical structure and the physical properties of the moving parts, the inner ear acts as an acoustic analyzer. This means that one part of the structure moves more in response to sound waves of one frequency and other parts of the structure in response to other frequencies.

The neurophysiologist takes up the task at this point. His most powerful tool is the electrical amplifier and oscilloscope. Fortunately for him each nerve impulse generates an electrical disturbance, the so-called 'action potential.' These signals are weak and lie just at the limit of our ability to detect them. Our recent successes in studying their relationships to the sound waves that initiate them depend on several technical procedures. First, we employ animals, under anesthesia of course, and we place very fine wires within the inner ear or in the auditory nerve or in the nerve centers of the brain, as close as possible to the places where the electric signals are generated. This method alone has told us much about the exact location within the brain of the pathways that conduct the auditory impulses to the higher levels. Second, we use auditory signals such as clicks or very brief bursts of pure tone that set up impulses in many nerve fibers at the same instant. The action potentials re-enforce one another and the combined signal is easier to detect and study. In some fortunate situations, however, using electrodes of microscopic dimensions, we have been able to study the activity of one single nerve cell and to learn how it behaves (2).

Electrical studies such as this, (not all confined to the auditory system) have shown that the basic code of signalling of the nerve fibers is very simple. All nerve impulses are alike. Either a nerve impulse is present or it is absent. For a given fiber there is no significant gradation in the size of its impulses. They are 'all or none.' And the frequency at which impulses can follow one another in a nerve fiber is not over 1000 per second—usually somewhat less. The only degrees of freedom are first, differences in frequency below 1000 per second, second, the exact time-relations between impulses in different fibers, and third, which nerve fibers or how many nerve fibers are active. Nevertheless the auditory system carries all the information that makes up the spoken message, in spite of the severe limitation of the all-or-none law. This it can do because of the large number of nerve fibers, that is the large number of independent channels, that it contains. This property is in sharp contrast to the *single* channel for sound waves in the *air*. In the air, however, higher frequencies can be carried and all gradations of intensity are possible.

I am simply describing problems

and our methods of attack upon them. One problem is the complete description of the relations between the pattern of sound waves and the pattern of nerve impulses. Another is the nature of the process of excitation that initiates the nerve impulse. This problem is of interest to the physiologist in its own right. The solution will have large implications, however, as it may give a lead to the next major problem, which is how the nerve impulses interact with one another in the gray matter of the brain.

In the gray matter the many channels of the auditory nerve converge and the impulses interact with one another. The generalization that the information carried in the message is still preserved tells us that as the number of channels is reduced in this convergence there must be some compensatory gain in another dimension. Some escape from the straight-jacket of the all-or-none law must be possible in the form of gradation of intensity. We have not found this gradation yet with certainty although there are clear indications of it. We know what kind of process we are seeking, and with this sign-post to guide us we can look forward with confidence to ultimate success. I am equally sure that the same kind of assistance can be found in examining other steps in auditory communication from the point of view of transmission of information. Such other steps are the generation of speech sounds, the control of the organs of speech, and in due time possibly the very difficult problems of *aphasia* and of the *rate at which we can assimilate and react to* the information that reaches our brains.

The importance of a unifying principle that connects physiology and psychology cannot be overestimated. In the exact concepts of information and communication we shall find, I believe, the key to understanding the relationship between mind and body. More precisely I should say that they will show *the essential unity of mind and body*. Ideas are patterns of information, some of it just arriving, some of it stored from previous experience. The old and the new interact, and various bits of the old interact with one another. But the information and the interaction do not exist apart from matter and energy. Information and ideas are patterns of interrelated physical events occurring in time and in definite places. The key words here are *patterns* and *physical*. I believe that our minds *are* the successions of our ideas, including our motor ideas. By *motor ideas* I mean the initiation of an action like clenching my fist or communicating an idea to my neighbor. *The identification of information as negative entropy specifies the nature of the relation between 'mind' and 'body.'* The nature of this relationship is difficult to grasp and I will not attempt to explain it here. The concept is as difficult as the concept of transformation of matter to energy—and its implications are fully as profound.

At a more practical level an all-out all-around attack on the problem of auditory communication is now going on. It involves the diverse disciplines and techniques of physics, of physiology and anatomy, and of psychology. Each has its own methodology and concepts. Each speaks its own language. But they can be coordinated and unified by attention to something that is common to all of them, the concept of information itself.

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Editor's Note

DURING recent years the American Speech and Hearing Association has been involved in four publications in addition to the *Journal* proper. Since these have appeared separately, have received only minor notice, and might have been overlooked by some readers, they are listed here together.

Speech and Hearing Problems in the Secondary School. This work constitutes most of *The Bulletin of the National Association of Secondary-School Principals* for November, 1950. It was written by an Editorial Committee of ASHA, with Stanley Ainsworth as Chairman, and was prepared with the cooperation of SAA. Although addressed to principals of secondary schools, this clear, simple presentation will be useful to a much wider educational audience. It is obtainable for $1 from the Secretary-Treasurer.

Stuttering. This 60-page booklet, published by the National Society for Crippled Children and Adults, Inc., was prepared for ASHA by Charles Van Riper, and edited by Wendell Johnson with the assistance of a committee of ASHA members. It represents an attempt to present to parents, as well as physicians, nurses, social workers, teachers, and psychologists, a statement concerning stuttering that reflects substantial agreement among professional speech pathologists. Copies are available from the Secretary-Treasurer for 35 cents each, 30 cents each in lots of 25, and 25 cents each in lots of 100.

Speech Problems in Children. This 261-page book was prepared by ASHA for the National Society for Crippled Children and Adults, Inc. A group of writers, together with editorial advisers, worked under the editorship of Wendell Johnson. Written for the non-specialist, it offers authoritative information on recognition and treatment of speech disorders. It may be purchased from Grune and Stratton, Publishers, 381 4th Avenue, New York 16, N. Y. at $3.75 per copy.

The Effects of Noise on Man, by Karl D. Kryter, Monograph Supplement No. 1 to the *Journal of Speech and Hearing Disorders.* This 95-page study reviews the experimental literature on effects of noise upon behavior, auditory damage as a result of noise, and noise as a disruptive factor in speech communication. It has been distributed without charge to all members of ASHA. Additional copies at $1 each may be obtained from the Secretary-Treasurer.

Cleft Palate Speech: An Integration Of Research And Clinical Observation

Eugene T. McDonald

Herbert Koepp Baker

A REVIEW of the literature dealing with cleft palate speech indicates that most speech correctionists recognize three major speech production problems: hypernasality, nasal emission, and misarticulation *(1, 2, 3, 6, 10, 11, 12, 21, 22, 30, 31, 32, 33)*. Much of the speech therapy described by these specialists has as its aim the elimination of hypernasality which is attributed to the malfunctioning of the velopharyngeal mechanism. The following statement from Gaines and Wepman (*11*) represents the point of view held by most people who have written on cleft palate speech:

> The act of raising the palate is so important to speech that almost any effort that is required to get it done is worthwhile, for nasalized speech is both unpleasant to hear and difficult to understand.

Wardhill (*31*) makes the same point in another way when he recommends that the child be made 'valve conscious.'

Eugene T. McDonald (D.Ed., Pennsylvania State, 1942) is Professor of Speech and Speech Education and Director of the Speech and Hearing Clinic, Pennsylvania State College. Herbert Koepp Baker (Ph.D., Iowa, 1938) is Professor of Clinical Speech Pathology, College of Medicine, and Director of the Cleft Palate Training Program and Center, University of Illinois.

Hypernasality

There is evidence that failure to effect a velopharyngeal closure does result in nasal quality in speech:

1. In the normal production of [m], [n] and [ŋ], the nasal sounds of English speech, the velum and pharyngeal walls are relaxed, thus leaving the velopharyngeal port open (*19*).

2. In assimilation nasality, the characteristics of nasal consonants affect the acoustic spectrum of adjacent vowels. If, as West, Kennedy and Carr (*34*) point out, there is a lag in elevating the palate for a vowel following a nasal sound, or if the velar position for a nasal consonant is anticipated while producing a vowel, assimilation nasality will result. Curtis (*8*) has shown that even during normal production of a nasal-vowel-nasal sequence there are transition periods on both sides of the vowel which have the acoustic characteristic of nasality.

3. When a normal speaker simulates nasal quality he apparently does so by raising his jaw and the dorsum of his tongue, and by keeping his velum in the unelevated position while speaking.

4. We have seen several persons who have lost a portion of their palates because of disease, accident or surgery

who develop nasal speech—apparently as a result of being unable to effect a velopharyngeal closure.

5. We have seen bulbar polio patients whose speech, following paralysis of the velum and pharynx, became hypernasal.

It is such observations as these which probably have lead to the concentration on improving velopharyngeal function in cleft palate speech therapy. There is considerable experimental and clinical evidence, however, that the nasopharyngeal port need not be completely closed for nasality-free speech.

1. Dorrance (*9*) quotes Schmidt's findings that speech could remain normal while there was a rubber tube with a lumen of 6 mm. between the velum and the posterior pharyngeal wall, but that when a tube of larger lumen was inserted, speech became nasal.

2. Nusbaum, Foley and Wells (*23*) tested the velopharyngeal seal during phonation of certain vowels and found that some or all of the vowels may be made acceptably and without nasality although there may be, at the time, an escape of air through the nose. They suggest that some good voices probably may owe their richness to the use of additional coupled-resonator support afforded by an aperture into the nasal cavity.

3. Kanter (*16*) reports a phenomenon which is seen frequently in cleft palate diagnostic clinics; that is, patients with wide, unrepaired clefts in the hard and soft palates who seem, subjectively at least, to have less nasality than some patients whose palates, though repaired, are functionally inadequate.

4. Kaltenborn (*15*) conducted a roentgenographic study of velopharyngeal closure in nasal and non-nasal speakers and concluded that good voice quality is possible without a complete closure of the nasopharynx so long as the opening into the mouth is much greater than the opening into the nasopharynx.

5. Harrington (*13*) in studying the mechanism of the velopharyngeal closure, found that the mean extents of movement of the velum in normal vowel production ranged from 2.60 mm. for [ɑ] to 7.79 mm. for [u]. Obviously, if a movement of 7.79 mm. produced complete or almost complete nasopharyngeal closure, a movement of only 2.60 mm. must result in something less than closure, yet these vowels were considered to be non-nasal.

6. Clinically, we have seen cleft palate patients eliminate nasality by training, even when a velar insufficiency or immobility precluded a velopharyngeal closure.

Several writers have found nasality to be related to conditions other than the velopharyngeal closure:

1. Russell (*25*) suggested that this particular acoustic pattern might be the result of resonance in a cul-de-sac resonator. While this cul-de-sac resonator might be the nasal cavities, it might also, for example, be a pouch formed back of the larynx at the mouth of the esophagus, or one formed between the epiglottis and the root of the tongue.

2. Williamson (*35*) concluded, after studying 84 cases of nasality, that exercises to elevate the velum and bring it into contact with the pharyngeal wall for the non-nasal sounds were unnecessary except in one seventeenth of the cases. In his opinion throat and mouth tension, a 'muting tongue,' inhibited oral activity and partial, distorted resonance seemed to be major diagnostic factors.

3. Hixon (*14*) compared various measurements made from lateral roentgenographic headplates of a group of nasal and non-nasal speakers. In nasal speakers he found a tendency for the oral cavity anterior to the highest portion of the tongue to be larger than the cavity posterior to that point. This condition was reversed in non-nasal speakers. He also found that the tongue height above the incisal line tended to be greater in the nasal group.

4. Kelly (*19*) found that hypernasal speakers tended not to have as large mouth openings in the production of certain vowels as normal speakers.

5. In many subjects, it can be demonstrated clinically that if, while they are phonating [a], the dorsum of the tongue is depressed with a tongue depressor, the quality of the voice will become less nasal.

In view of these data, it seems clear that, as Kantner (*17*) suggests, nasality must be regarded as a 'matter of resonance.' Curtis (*8*), after comparing the wave composition of nasal voices with that of non-nasal voices, concluded that nasalization of the vowels is accompanied by a reinforcement of cetain low frequencies typically centering around 200 to 250 cps. These frequencies are, for the most part, not reinforced in the non-nasal vowels. This finding seems also to be supported by the spectrograms which were made by Potter, Kopp and Green (*24*) who note particularly a reinforcement of the bar along the baseline (300 cycle area) as a characteristic of nasalized vowels. As long as we continue to label this quality of cleft palate speech 'nasality' there is a strong tendency to assume that some undesirable physiological events are occurring in the nose or nasopharynx and to prescribe a type of therapy which will prevent these nasal events from occurring. This is the intent of exercises designed to improve the velopharyngeal closure. If, however, we regard this quality of cleft palate speech as an acoustic phenomenon characterized by the selective amplification of the 250 (plus or minus 50) cycle area, we can then assume that there is some cavity or combination of cavities which responds selectively to this frequency range. Holding this view, speech therapy then would aim to modify the cavity relationships in the oro-naso-pharyngeal area.

This leads to our first hypothesis about cleft palate speech: There is a critical point in the degree of closure of the nasopharynx. It is at this critical point that a characteristic balance or ratio is established between oral and nasal resonance. If this critical point is not reached, 'nasality' will occur. There is probably considerable individual difference and this critical point is not to be regarded as a fixed point along the dimension between the border of the velum and the posterior wall of the pharynx. Rather, this point is determined by the position of the tongue and mandible, the degree of patency of the oropharynx, and perhaps other factors. This hypothesis seems to be supported by the work of Kaltenborn (*15*) who concluded that 'nasality is caused by having too wide an opening into the nasopharynx in comparison with the opening into the oral cavity.'

We further hypothesize that at least some of the cleft palate patient's 'nasality' results from his persistent habit of elevating the mandible and the dorsum of the tongue during speech. This movement pattern has two possible ill effects. First, it reduces the size of the opening into the

oral cavity, thus affecting adversely the critical point of closure of the nasopharynx. Secondly, it tends to divide the combined oral and pharyngeal cavities into two markedly disproportionate cavities, thus producing the resonator or resonators which will selectively respond to the 250 cycle area. This assumption appears to be supported by the study of Hixon (*14*), who found that nasal speakers tended to keep their tongues higher above the incisal line than do non-nasal speakers, and that nasal speakers tend to have smaller cavities posterior to the highest point of the tongue than do non-nasal speakers.

Many clinicians have noted the tendency for cleft palate patients to keep the dorsum of the tongue high in the mouth during rest and in speech. One of the authors of this paper clinically identified the 'high riding' tongue as typical of cleft palate cases in 1938 (*3*). Buck and Harrington (7) report that 'frequently the individual uses the tongue to fill space and block air passages before repair which results in extreme sluggishness and inactivity.' Shohara (*26*) made a palatographic and roentgenographic study of the speech of one cleft palate patient and noted 'habitual high back contacts of the tongue with the hard palate and velum even when pronouncing front consonants.'

Nasal Emission

Though nasal emission has been noted by many clinicians, it has not always been clearly distinguished from nasality. We have not been able to locate any objective research on nasal emission except the study of Nusbaum, Foley and Wells (*23*). They found that vowel sounds free from nasality may be made even when air is escaping through the nose. We would suggest that the meaning of the term 'nasal emission' be restrictively employed to describe the escape of air through the nasal passages when the speaker attempts to produce any sound requiring intra-oral breath pressure such as plosives or fricatives. While we recognize that there may be some nasal emission of air on other sounds, it does not usually affect the characteristics of the sound significantly. On a plosive or fricative sound, however, the air turbulencies produced by nasal emission do alter these basic characteristics. It should be observed here that there is considerable clinical and laboratory evidence which leads us to question the rather general over-emphasis of the necessity for high intra-oral pneumatic pressures for adequate production of plosive and fricative speech sounds. This erroneous view leads to therapeutic procedures in which the patient strives to achieve high intra-oral pressure to the neglect or exclusion of other more important phonetic and phonologic revisions. There is, of course, a marked intra-oral air pressure difference between the voiced and unvoiced cognates, as was shown by Black (*5*).

It is our third hypothesis regarding the nature of cleft palate speech that the amount of nasal emission is related principally to mandibular and lingual position and movement, and only secondarily to: (1) The degree of patency of the nasopharyngeal port; (2) the degree of constriction of the pharynx; and (3) the habitual use of excessive air pressure which the cleft palate patient appears to develop to compensate for his 'leak.'

It is a common observation that if upon expiration, the mouth is held open, the soft palate and pharyngeal muscles relaxed, the air stream is expelled through the mouth. If by in-

tention the air stream is directed through the nose with the mouth open, it is achieved by an elevation of the tongue. In some individuals, the soft palate rises slightly, but ordinarily does not establish a seal of the naso-pharyngeal port. It is reasonable to assume that the shape and size of the nasal spaces presents greater impedence to the air stream than does the oral cavity. It is our view that as a determinator of the path of the air stream, the action and position of the tongue is of much greater significance than the position of the velum and pharyngeal walls. If, as we assume, the mandibular and lingual positions of the untrained cleft palate patient are characteristically and chronically high, his total oral-motor set will be one which tends to direct the air stream into the nose.

Articulatory Defects

The articulatory problems of the cleft palate patient have received the attention of several writers. Shohara (*26*) made pretraining roentgenograms during pronunciation of [s] which indicated that the back of the tongue was brought far back, near the pharyngeal wall while the mid-portion was arched high. In the post-training pronunciation, the tongue was lower along the anterior-posterior mid-line, the back of the tongue was brought forward and the dorsum was much lower. Eckelmann and Baldridge (*10*) report that the following sounds are likely to be distorted or replaced by other sounds: [h], [p], [b], [t], [d], [s], [ʃ], [tʃ], [f], [v], [θ], [ð], [w], [k,], and [g]. Several writers have noted articulatory deficiencies in cleft palate speech which they could not logically attribute to the cleft palate. Berry (*4*) writes '. . . certain sounds, [t], [d], [l], [s], [z], [ʃ], and [ʒ], were found to be defective because the tongue did not make the proper articulatory adjustments.' She relates this failure of the tongue to make proper adjustments to some anomaly in structure or developmental function. Kanter (*17*) suggests that some of the articulatory symptoms '. . . are more characteristic of a general speech retardation or of a hearing loss.' Madsen (*20*) notes that some of the articulatory problems of the cleft palate patient '. . . show a speech characteristic and a possible etiology similar to articulation cases having no oral deformity.'

Our fourth hypothesis attempts to explain the development of these articulatory mutilations. It is our observation that most of the cleft palate patient's articulatory errors are the results of his habit of talking with the jaw elevated and the dorsum of the tongue held high in the back of the mouth, thus making it impossible for him to make the free use of the tip of the tongue which is necessary for the accurate production of many speech sounds. Westlake, in a conversation with the authors, suggested that this pattern may develop during infancy in an attempt to keep food from entering the nasal cavity. It may be that as some embryologists have recently suggested, these variant tongue positions may partially be established during intra-uterine life. We believe that another factor might also be operating. In an attempt to reproduce the plosives and fricatives which he perceives in speech, the cleft palate patient compensatively develops some method of placing the necessary obstruction in the way of the outgoing air stream to impound air or develop intra-oral breath pressure. This obstruction can be created conveniently at the level of the glottis and thus the glottal stop is developed

as a substitute for plosives, or the glottal fricative develops as a substitute for fricatives. Other patients may develop instead of, or in addition to, the glottal obstruction, the habit of elevating and retracting the dorsum of the tongue in an attempt to develop the pressure in their oropharynx which is necessary to produce an explosive or friction-like sound. We recognize that in some cases the factors of hearing loss, general retardation, lingual anomalies, and in fact any other factors which may operate to cause articulatory defects, also contribute to the cleft palate patient's articulatory deficiency. We feel, however, that the habitual elevation of the mandible and retraction of the dorsum of the tongue is the major etiological factor.

Our fifth hypothesis concerning the nature of cleft palate speech concerns a point which has received little attention in the literature. We believe that an important part of the quality of cleft palate speech is the result of faulty phonation. Subjectively, this seems to vary a great deal from patient to patient; however, it can best be described as an ineffective use of air which adds to the over-all quality a feature similar to breathiness, and which prevents the speaker from producing sounds with a wide acoustic spectrum. There seems to be some support for this hypothesis in the work of Curtis (*8*) who compared the wave composition of several vowels produced by two normal speakers simulating nasality and three pathologically nasal cases, one of whom had a congenital velar insufficiency, another a velar paralysis, and the third a cleft of the hard and soft palates which had been incompletely closed by surgery. He found the nasalizations similar in regard to the great relative energy in the low frequencies. The high frequencies were markedly attenuated in the pathological nasalizations. It seems reasonable to assume that this attenuation may be the result of faulty phonation rather than the result of damping effect of certain resonators.

This phenomenon is not easily explained. The writers have observed the tendency for cleft palate speakers, particularly those who have long spoken without training, to have voices which the laryngologist identifies as 'hoarse.' A series of careful observations made in the otolaryngological clinic of the University of Illinois appears to support this impression of the speech pathologist. The etiology of this concomitant phonatory disorder is not clear. That the function of valving or 'articulating' fricative and consonant sounds with the vocal folds is superimposed upon and alien to the usual phonatory processes is self-evident. To what extent it permanently or temporarily modifies the character of the vocal cord tissue is not now known. Direct and indirect laryngoscopic examinations of adult cleft palate patients not uncommonly reveal hyperemia and hyperplasia of the vocal folds. Clinically, it has long been recognized that in cleft palate patients, the physiology of the nasal and pharyngeal mucosa is severely disturbed. It may be that this hoarseness is due to a generalized tissue pathology alone, or in combination with the aberrant use of the larynx as an 'articulator' in speech.

In view of the hypotheses herein presented, one may question the advisability of routinely prescribing blowing exercises as a first step in cleft palate speech therapy. The aims of blowing exercises, as summarized by Kantner (*16*) are: (1) To exercise the muscles of the soft palate and adjacent structures having to do with

the closure of the opening into the nasopharynx, and (2) to teach the patient to direct the air stream through the mouth. Concerning the first aim, Kantner says:

> No objective research on this particular matter has been found, but the writer's observations lead him to believe that there is relatively little direct and spontaneous carry-over into speech of increased palatal efficiency achieved as a result of blowing exercises.

Concerning the second aim, we should like to raise the question that if it is true that the cleft palate patient habitually elevates and retracts the dorsum of the tongue while speaking, might it not be better to begin speech therapy with training procedures designed to get the dorsum of the tongue out of the way of the breath stream?

There are several arguments against the routine use of blowing exercises:

1. It concentrates the clinician's and the patient's attention on the velopharyngeal closure when, in our opinion, the major cause of hypernasality, excessive nasal emission, and faulty articulation is the elevated mandible and malposed tongue.

2. The type of movements used in blowing are different from those employed in speaking. Blowing is effected by strong tonic contractions producing 'fixed movement' while speech is principally the result of clonic contractions producing ballistic movement (*28*).

3. Blowing exercises sometimes result in the development of undesirable accessory movements such as constriction of the nares and other facial grimaces.

4. Typically, the cleft palate patient seems to use too much air pressure and blowing often results in an even greater use of air pressure.

5. Initial blowing exercises often result in failure and frustration, thus creating psychological problems.

6. Clinical experience with over 200 patients has demonstrated that cleft palate patients can develop intelligible and, in many cases, near-normal speech without recourse to blowing exercises.

We are aware that some clinicians have drawn a distinction between hard blowing and easy blowing. In general, however, we feel that most of the objections listed above apply to both. Furthermore, it has been our experience that considerable teaching and practice are necessary to produce 'easy' blowing. While learning to blow easily, considerable 'hard' blowing is usually practiced. In our opinion, this time might be spent more advantageously in modifying patterns of mandibular and lingual activity.

The following indications are offered as being helpful in determining when blowing exercises might be used to advantage:

1. If there is very little, or no perceptible movement in the velum or the pharyngeal walls, blowing exercises might be used in an attempt to initiate such movement. We have found, however, that even a little movement in these structures can be developed into adequate movement by speech drills alone without recourse to blowing.

2. After speech training has produced modification of mandibular and lingual habits, it may sometimes be advisable to use blowing exercises to increase mobility of the velopharyngeal structures.

3. If a patient is so emotionally disturbed by his speech difference that he resists any therapy involving evaluations of his speech performance, some non-speech activities such as blowing exercises may motivate him

to continue speech therapy so that urgent mental hygiene therapy can be employed.

In developing a speech retraining program, the writers have attempted to meet the specific problems discussed in this paper. The hypotheses may be summarized in the following statements: (1) Faulty jaw and tongue habits are the major etiological factors in the misarticulations, hypernasality and nasal emission of either surgically or prosthetically restored cleft palate patients. (2) An important feature of cleft palate voice quality is due to faulty phonation. Two other assumptions have determined the nature of the rehabilitation program to be described: (1) The physiological unit of speech production is the syllable and the psychological unit of speech production is the speaking event. (2) Speech is but one of the disordered aspects of the cleft palate person's adjustment. Because of his speech difference, his appearance, etc., the cleft palate person almost typically develops some personal maladjustments. Since speech improvement is a function of personal adjustment, it is essential that a systematic mental hygiene program be a part of the rehabilitation program.

A Rehabilitation Program

It is imperative that any adequate rehabilitation program recognize that the cleft palate child is a member of a family unit and hence should provide such counseling for the mother and father as will help them accept their handicapped child, and provide them with information that will lead to a program of positive action. It must include opportunities for them to discuss their problems and find answers for their questions. Since the discovery that their newborn child is imperfect is an exceedingly traumatic experience for most parents, it is essential and urgent that counseling techniques and facilities be developed which can be made available to the mother even while she is still hospitalized. Cleft palate parents' councils and study groups patterned after those often established for cerebral palsy children should be encouraged. Parents should be guided to stimulate their young child to vocalize and later to 'talk' and to accept his defective speech attempts without emotional reaction. Games which will require the child to respond to speech sounds and help him develop sharp auditory discrimination should be included in the parent-child activities. It hardly seems necessary to point out that every effort should be made to have the parents regard their child as a normal child with a handicap and to do every thing they can to keep him normal both physiologically and psychologically.

When the child is five or six years old and his palate has been restored surgically or prosthetically, the following systematic sequence of instruction should be carried out:

1. Training in the production of [ɑ] *and* [æ]. While some clinicians feel that vowel exercises should be postponed until a few consonants have been mastered there are several reasons why we feel that speech training should begin with vowel exercises:

(a) The vowels, [ɑ] and [æ], can be produced with the mandible depressed and the tongue relatively low in the mouth, thus counteracting the tendency to elevate the dorsum of the tongue.

(b) Vowels can be prolonged, thus providing an acoustic pattern of longer duration for the patient to study discriminatively.

(c) We are interested in teaching sounds in syllable units. Good vowel production is basic to this procedure.

(d) Some clinicians begin with instruction on the plosive consonants. Since in speech the consonant functions to delimit (open and close) the syllable (*29*), however, the patient may thus be using a speech movement which he has not practiced, and hence, may affect adversely the vowel sound he is asked to analyse critically.

(e) Vowel exercises help eliminate the faulty phonation which we feel is an important part of the cleft palate problem.

(f) Relaxed production of the vowels helps reduce the pharyngeal tensions which often develop in cleft palate speech.

For initial training we select the low back vowel [ɑ] and the low front vowel [æ]. Harrington's study of the mechanism of the velopharyngeal closure (*13*) suggests that of the vowel series, the least amount of velar elevation and mesial movement of the pharyngeal walls is necessary for a normal production of the sounds of [ɑ] and [æ]. These sounds can also be made with the tongue relatively low in the floor of the mouth. By this training procedure it seems possible to produce the optimal relationships between the opening into the nose and the opening into the oral cavity; the optimal degree of tension in the pharynx; and the most effective use of the larynx.

We begin by having the patient prolong these vowels concentrating on the production of a clear tone. Emphasis is placed on the positive concept of 'orality' rather than the negative concept of 'nasality.' After some proficiency is developed in producing these vowels with a high degree of orality the patient is instructed to interrupt phonation but maintain the same motor set otherwise. From this he learns to produce a series of vowel sounds each as nearly like the others as possible. In the next step, he is instructed to interrupt phonation and allow all speech structures to return to the rest position. Its aim is to produce clear vowel sounds as nearly identical as possible and free from excessive amounts of nasality. In this way, he learns to produce an acceptable series of vowel sounds by concentrating on the development of orality. When sufficient skill has been developed in this procedure, he is instructed to shift from [ɑ] to [æ] without interrupting phonation and without allowing the orality of the sounds to become reduced. (In other words, he must prevent over-elevation of the dorsum of the tongue, keep the tensions in the pharynx at a minimal level, and phonate effectively.)

2. *Training in the production of* [b]. While the procedure might differ from case to case, rather than teach all the vowels in succession, we prefer to begin working with vowel-consonant combinations as soon as possible. There are at least two reasons for this:

(a) Stetson (*28*, *29*) and his students have demonstrated that the syllable, not the phonetic element, is the physiological unit of speech. They have shown convincingly that kinetically the function of the consonant movement is to release or arrest the syllable movement. Therefore, it seems advisable to begin working with the consonant-vowel syllable unit as soon as possible in the training program.

(b) As Shohara and others (*27*) have pointed out, the pattern of the muscle movements of every sound varies widely with the varying character of the preceding and succeeding

movements. Since, in connected speech, vowels are usually preceded or followed by consonants, rather than other vowels, it seems advisable to begin practicing on these combinations early in the training sequence.

We select [b] as the first consonant to be taught because it is made with the tongue low in the mouth and it is not a nasal as is [m]. Generally, it is physiologically more sound and clinically more effective to teach the consonant-release movement in two or more syllable combinations. We begin by teaching the [b] movement in the syllables [ɑ b ɑ] (the so-called medial position). The patient's alert discrimination is maintained to assure the correct quality in the vowel sound antecedent to, and following the consonant movement. The vowel [æ] is practiced next. When these two vowels are reasonably satisfactory as to quality when released by the consonant [b], the same vowels are practiced in syllables in which the consonant [b] functions in its arrest position, i.e., [ɑ b] and [æ b]. When used in series, care must be exercised to keep the rate of total syllabic movement slow enough so that the consonant does not begin to function as a release movement in the syllable.

3. Short sentence practice. In order to have the child practice the newly learned speech movements in normal rhythm patterns as soon as possible, short sentences using words from the child's vocabulary should be devised which contain the [b] sound in combination with [ɑ] or [æ]. These sentences must have only three or four words, and contain only one word on which the child's attention is to be focused. At this point, neither the child nor the clinician should be concerned about the other 'defective' words in the sentence. In such a sentence, as 'Give me the bat,' the child should concentrate only on the [bæ] in [bæt] and on saying the sentence in as nearly a 'natural' way as possible.

4. Training in the production of [p]. Teaching the [p] sound should follow the outline suggested for the [b], including the practice in short sentences as discussed above.

5. Training in the production of other vowels. With the syllables made by combining [b] and [p] with [ɑ] and [æ] as a base for practicing the overlapping movements of speech, the other vowels are introduced using procedures similar to those outlined for teaching [ɑ] and [æ]. The words should be made as meaningful as possible for the child. No attempt is made to study all the vowels and it has appeared that better results were obtained when the vowels were studied in this sequence: [ɑ], [æ], [ɛ], [o], [ɪ], [ʊ], [i], and [u]. It might appear that it would be more consistent with the hypothesis presented concerning the role of the jaw and of the dorsum of the tongue in determining the quality of cleft palate speech, to teach the low front vowel first and then work progressively through the front vowels since this sequence might result in a forward movement of the whole tongue and a progressive depression of the back of the tongue (*18*). The degree of velar elevation necessary for the production of the vowel, however, must also be considered. Harrington (*13*) has pointed out that the height of the velum in normal production of the vowels progresses from [ɑ], the lowest position, to [æ], [i], then [u]. Clinical experience has demonstrated that it is easier to develop orality on the low back vowels than on the high front vowels. As each vowel is learned it is combined with [b] and [p] for syllable drill as described above.

6. Teaching other consonants. There will be considerable variation from child to child in the timing of the introduction of the consonants. With some children it might be deemed advisable to teach all the vowels in combination with [b] and [p] before teaching any other consonants. In other cases, additional consonants may be introduced after only a few of the vowels have been learned. Such factors as the child's interest and intelligence, the need for developing intelligibility quickly, etc., must be taken into account. Intelligibility can be obtained more quickly by early concentration on the consonants. More nearly normal speech can be achieved, however, by the slower process of studying each vowel-consonant combination systematically as outlined herein.

In general, the order in which the consonants are taught should be determined by the degree of elevation of the mandible and tongue required for their production, leaving [m], [n], and [ŋ] to the last. The procedures used in teaching [b] and [p] should serve as guides for teaching the other consonants.

7. While it is not within the scope of this paper to develop the following concepts fully, we believe that the problems of a cleft palate person can best be met in a retraining program which integrates individual treatment with intensive group therapy and which gives systematic attention to the development of adequate personal and social adjustment skills as well as speech skills. The work of Backus and Dunn (2) in the carefully controlled clinical situation has demonstrated the soundness and value of properly structured group therapy for organic speech disorders, and as clinicians we are thoroughly in agreement with their repeated emphasis on the mental hygiene features of group work.

Summary

A series of hypotheses concerning the nature of cleft palate speech is presented. These hypotheses seem to be supported by research and clinical experience; however, they are not to be regarded as dicta, but rather, as points of departure for future research and further careful clinical observations.

The outlined therapeutic procedures are based on these hypotheses and have proved to be clinically useful.

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Group Speech Therapy For Motor Aphasia And Dysarthria

Marria Lennon Corbin

Since World War II much more attention has been devoted to the problem of retraining the aphasic patient than in previous years. The most comprehensive, widescale program for speech rehabilitation of aphasic patents is that set up by the Veterans Administration, which has provided such training at 126 facilities throughout the country since 1945. The largest of these is the Aphasia Clinic which was established in November, 1946, at Birmingham Veterans Administration Hospital, Van Nuys, California, under the direction of Dr. J. M. Nielsen, National Consultant in Aphasia to the Veterans Administration. In June, 1950, the Clinic was transferred with all the other hospital facilities to the Long Beach Veterans Administration Hospital at Long Beach, California.

Although the Aphasia Clinic was established primarily for the rehabilitation of World War II veterans who had incurred service-connected trauma to the brain with resulting aphasia, it has been made available to all aphasic veterans whose language disability was neither service-connected nor due to trauma.

It is the purpose of this article to review that phase of the Aphasia Clinic's speech rehabilitation program concerned with group therapy for motor aphasic patients and patients whose speech is dysarthric. An attempt is made to give concrete examples of techniques and procedures which have produced satisfactory results with these two groups over a period of two and a half years.

The Need For Group Therapy

At its inception, the Clinic admitted 10 patients for therapy. Although the patient load increased rapidly, the staff of five, including four language therapists and the clinic supervisor, were able to provide individual therapy once or twice daily for all patients whose prognosis warranted it. Gradually the situation changed in several ways. Considerably greater numbers of patients were referred for rehabilitation. The younger, World War II patients felt the need for increased therapy, and, in accordance with Veterans Administration policy, they were given preference in the apportionment of therapy time. At the same time, older, World War I patients continued to be assigned to the clinic, but even when their prognoses were

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good or fair, there remained fewer opportunities for them to receive individual therapy.

Thus, in the early part of 1948, with an average weekly roster of 35 patients, group therapy was begun. It has been gradually expanded to meet the varying needs and conditions until, at present, a weekly average of from 45 to 60 patients are treated in a comprehensive system of group therapy covering all phases and degrees of language rehabilitation for aphasic patients.

At the time of this writing, the program consists of the following 17 groups, not including several psychotherapy groups conducted by staff psychologists:

Elementary Motor Speech, Elementary Oral Formulation, Sub-Elementary Writing (motor function), Elementary Written Formulation, Elementary Number Concepts and Problem Reading, Basic Arithmetic Processes (grades 1-4), Arithmetic (grades 5-6), Arithmetic (grades 7-8), Intermediate Reading Comprehension, Intermediate Oral Formulation, Intermediate Spelling (through grade 6), Advanced Oral Formulation, Advanced Reading Comprehension (speed reading), Advanced Written Formulation, Advanced Spelling, Dysarthria Group, Group Discussion.

The two groups which are the subject of this paper are those primarily designed to deal with the motor aspects of the aphasic patient's language retraining: the Elementary Motor Speech and the Dysarthria Groups.

It should be understood that many of these groups overlap to some degree in content, methods, etc., but this overlapping has proven beneficial rather than disadvantageous. Since no aphasic patients demonstrate isolated and clear-cut losses in only one language sphere, the overlapping in group therapy serves to reinforce and strengthen engram patterns through all language pathways. As homogeneous a basis as possible is sought, however, in establishing a particular therapy group. With that basis determined and stressed, some deviations are then made in assigning patients to the group.

When a patient is referred by his ward physician to the Aphasia Clinic for evaluation and recommendation, he receives a neurological examination. The nature and extent of his aphasic loss is studied and demonstrated. On the Veterans Administration Aphasia Case History Form are recorded findings in the spheres of aphasia, apraxia, and agnosia. If it is determined that the patient is capable of being retrained in language, the clinic staff then assigns him to whichever therapy groups would be beneficial to his type and degree of aphasia. He is also assigned to individual therapy if his prognosis warrants such assignment. The therapy schedule so set up is a flexible one, designed to meet changes in the nature of the aphasic patient's language performance.

Selection Of Patients

In explaining how it is determined whether a patient belongs in the Elementary Motor Speech or Dysarthria groups, and where the distinction between the two defects must be made, it is always simpler for one who works closely with aphasic patients over a period of years to state that the difference in speech patterns is obvious, and that split-hair definitions are pointless, since the methods of retraining will be grossly similar. The practicality of making some distinctions in speaking ability in order to

facilitate the treatment of a large, heterogeneous group of aphasic patients, however, warrants brief discussion of the types of defects found in each group.

Patients who are assigned to the Elementary Motor Speech group are those whose motor aphasia, or apraxia of the speech musculature, is severe enough to make even the simplest propositional speech impossible for them. Emotional expressions and automatic repetitive words and phrases are discounted in this evaluation. These patients may also have complete loss of writing ability (agraphia), loss of recognition of written letters and words (visual verbal agnosia), impaired ability to recognize spoken words (auditory verbal agnosia), and varying degrees of loss in reading ability (alexia).

Patients who exhibit such severe defects in the formulation of language as to be incapable of oral expression, even though the motor area for speech is not involved in the lesion, are also assigned to, and show progress in, this group. Occasionally a patient who has almost total aphasia benefits from the therapy procedures in this group, although such patients are usually sufficiently incapacitated physically that their condition precludes participation in any language therapy program.

The Dysarthria group includes all patients in the clinic with defective articulation, whether they are aphasic or not. Since the term dysarthria is a descriptive one, there must be enough spontaneous speech production on which to base the description of 'defective articulation.' The group served originally as an advanced section for those in the Elementary Motor Speech group who had recovered sufficiently from severe motor aphasia as to progress beyond the elementary stage of relearning speech patterns. It was expanded to include patients with other types of aphasia. Those selected were patients with moderate amnesic alexia and paraphasia, which defects, though not due to damage to the motor patterns for speech, respond, according to their severity, to some of the techniques used in retraining motor aphasic and dysarthric patients.

Patients with other, non-aphasic types of dysarthria are also present in the same therapy group. Included are those patients whose defective articulation is due to multiple sclerosis, Parkinsonism, hearing loss, laryngectomy, ataxia, partial laryngeal paralysis, etc.

Age and Etiology. Although the etiology of the aphasia or the age of a patient bears no direct relation to his assignment to either the Elementary Motor Speech or Dysarthria group, some definite observations on these factors as they apply to group therapy have been made during the two-and-one-half-year period covered so far by the group therapy program.

In general, the motor speech group has been comprised of older patients (above the age of 40), who have suffered cerebro-vascular accidents. Apparently the younger patients, or those whose motor aphasia is due to traumatic damage will, under favorable therapy conditions, regain sufficient motor speech function to work on the more advanced level of the Dysarthria group. The younger patients whose motor aphasia remained severe enough to require their continued attendance over a long period of time in the elementary group seem to have been those whose language disability resulted from vascular lesions.

Similar observations with regard to age and etiology as factors determin-

ing patients' progress in aphasia retraining previously have been made by Eisenson (*1*). His observations, based on a group of 21 patients seen for a period of one year, were that the younger, traumatic aphasic patient shows more rapid progress than the older patient whose aphasia is due to cerebro-vascular accidents. Although he did not claim that his observations indicated more than a trend, study of more than 300 patients seen over a four-year period at this facility would tend to confirm that trend. Thus, another element of homogeneity is inherent in the two therapy groups under discussion.

Techniques Used In Elementary Speech Group

Because most of the patients in this group have suffered cerebro-vascular accidents and are generally hypertensive individuals, each therapy session begins with a five-minute period of progressive relaxation. This is accomplished initially by means of explanation, demonstration, and imitation. Eventually the patients become so accustomed to the procedure that only infrequent direction is needed. Special attention is directed towards relaxations of jaws, lips, tongue, neck, and chest.

Since association between auditory recognition of speech sounds and visual recognition of position and movement of the organs producing them generally precedes speech production on the part of the motor aphasic patient, this association must first be established. The patients are handicapped, however, by apraxia of the speech musculature. This means that they are unable to imitate sounds or positions because they have lost the ability to direct and guide the muscle groups involved. Therefore, the first procedures in the group must be directed towards modifying or reducing this apraxia.

For this purpose, conventional speech exercises are adapted to the needs of the group. For instance, many motor aphasic patients cannot voluntarily initiate the sound of [a], or even open their mouths in the appropriate position. Through imitation of the therapist, self-observation in the mirror, and observation of other patients, the movement involved may be learned.

Training of Tongue Placement. Since apraxia of the tongue is one of the most severe handicaps to many patients, drill is carried out for retraining the tongue in position sense and movement. All of the patients may be asked to protrude their tongues as the movement is demonstrated. The patient who is not sure that he is responding correctly may be encouraged to feel his tongue with his finger and look at its position in the mirror. The movement can then be attempted by all members of the group, following a rhythmic count. From that point, drill can proceed through a series of tongue movements, particularly those involved in speech sounds. Included should be drills in touching the tip of the tongue to the alveolar ridge [t], [d], [n]; curling the tongue back in the mouth [l], [r]; resting the tip of the tongue lightly between the teeth [θ]; and pressing and releasing the back of the tongue against the velum [k], [g]. Coordination for back-of-tongue movement seems very difficult for most patients to achieve.

Movement of Lips. Lip movement drills are also effective in reducing apraxia of the mouth. The movements involved in the production of vowel sounds are frequently among the first

presented. A group of patients may be encouraged to develop a rhythmic pattern of moving the lips from the position for [u] to [i] and from [a] to [ou], etc.

A fairly general procedure followed in all drills with this group includes demonstrating the position, movement, or sound, writing the symbol on the blackboard when practical, encouraging group participation in unison, giving individual help, and then repeating group participation. It has been these elementary procedures which have proven effective for the occasional patient who has almost total aphasia. His attention to visual and auditory stimuli may be gained, and the first results achieved in developing awareness and greater mental alertness.

Vowel Sounds. In presenting speech sounds, it has been observed that the vowels [ɑ] and [ou] seem to be the most easily learned by the motor aphasic patient. The sound of [ju] seems to be the most difficult of the diphthongs. [ɑu] is usually more easily acquired than, for instance, [ɑɪ]. If a patient recognizes that the written symbol 'I' refers to himself, he will frequently achieve almost automatic production of the sound when it is used as a pronoun, but may fail to repeat the pattern when it occurs in any other context.

Another observation which has been made while teaching the motor aphasic patient to produce diphthongs is that the separate elements must nearly always be taught singly, and that combining them is frequently difficult for the patient. Thus, a group of patients learning to say [ɑɪ] might repeat [ɑ] in unison many times, then [ɪ], and then both sounds, though still separately. In learning to combine them, the patients must frequently be made conscious of the jaw movement involved. Each one may have to watch the others' movements, and watch his own in the mirror. Awareness of the kinesthetic sense may be brought about through guidance of the jaw movement by the clinician's hand, and then by the patient's hand. It sometimes helps to have the patient close his eyes while trying to concentrate on jaw and lip movement. The patient who cannot produce the sound of [ɪ] or [i] after all possible techniques have been exhausted by the therapist, is encouraged to feel that he will eventually be able to produce the sound. In the meantime, he is assured that his substitution of [ɑ] for [ɑɪ] is acceptable and can be understood. (Such assurance has been particularly easy to give in this locality, because many of the patients can be told that they are recovering their former Texas drawl.)

Consonants. After the patients have learned to produce at least one vowel sound, consonant positions and sounds are then taught concomitantly with the vowels. In general, the order of presentation of consonants in this motor speech group has followed that of the normal acquisition of sounds, although deviations must frequently be made. The easiest position for the patients to imitate seems to be that of the labials. Since voiced continuant consonants present less difficulty initially than those which are voiceless or plosive, the sound of [m] is usually taught before [p] or [b]. Patients who have sufficiently overcome apraxia of the mouth to achieve the lip position for [m] may still have difficulty in reproducing the nasal element of the sound. Group techniques which have proved helpful include humming in unison, touching the side of the therapist's or another patient's nose, using a stethoscope, and, in some

cases, viewing simple cross-section diagrams showing the difference in nasopharyngeal opening between nasal and non-nasal sounds.

The production of [p] frequently presents difficulty. Some patients have had to be re-educated in the simple act of blowing out the breath before the pattern for [p] could be established. Occasionally the entire group of patients has spent about 15 minutes blowing out matches, first in the usual manner, and then with the lips in position for [p]. They have similarly practiced blowing pieces of tissue paper, 'puffing' on a pipe, etc. In fact, it may be noted that many of the techniques employed in training the speech of the deafened child can be adapted for use with aphasic patients.

Syllable Formation. When the patients are all able to produce a consonant and vowel, the next step involves combining the two sounds. They cannot always be combined into meaningful words at first because, in severe motor aphasia, even combining [m] and [ɑ] represents a major task in coordination. The sounds may first be performed in unison, each one prolonged, while the therapist points to them on the blackboard. Then the blending of the sounds may be demonstrated vocally in exaggerated fashion, while a curved line is constantly drawn under or over the two separate sounds to indicate their blending. The time interval should be gradually shortened until the two sounds become a smoothly blended syllable. Again, mirror practice, ear training, and group performance prove helpful.

Writing Training. While these elementary motor speech patterns are being developed, relearning is usually also taking place in auditory recognition of speech sounds and visual recognition of written symbols. Because of the close proximity in the cortex of the motor areas for writing and speech, practice in writing the symbols while they are being said seems to help establish engrams more firmly for both speech and writing functions. The kinesthetic patterns are further reinforced by having the patients trace letters and words, with and without the written patterns before them. Since most of the patients in this group are also hemiplegic or hemiparetic, guidance must be given in left-handed writing.

Words. When a minimum amount of individual sounds can be produced by most of the members of the group, single words are introduced. The first words presented usually contain a single consonant in the initial position, followed by a vowel. Three main criteria determine the basis on which these words are selected for drill: (1) Meaningful words should be combined from those consonants and vowels which will be the simplest for the patients; (2) other, isolated sounds which patients can already produce spontaneously should be utilized as soon as possible; and (3) the first words selected should be of a concrete nature.

Building Language Associations. The latter criterion is one of the most important to be considered in retraining aphasic patients. Since many of those with severe motor aphasia also have various types and levels of agnosia, alexia, and agraphia, training in motor speech must be correlated with the losses in other language areas. Also, since poor retention seems to be strongly characteristic of most of these patients, their concepts must be strengthened through as many associations as possible. The easiest concepts to strengthen are, probably, the more concrete ones.

When two words are presented to the group, as, for instance, *pay* and *pie*, the patients have shown a tendency to learn to say and retain *pie* more readily because they can be shown an actual pie, see the word written on the blackboard, say and write it themselves, smell the pie, and then (as a reward for good performance) taste the pie. Not as many associations can be developed around the word *pay*.

Such basic techniques have also been carried out on the word *paw* when a dog happened to be in the clinic, on *pill* when the nurse administers medicine, etc. When the actual object is not available, pictures are often helpful.

When a patient has a severe loss in motor speech, and cannot attempt language formulation, it is necessary to place the therapy goal on a basically low level. For instance, such patients may learn to say the words *pie, my* and *by*, but cannot initiate or produce them spontaneously in the appropriate situation. They may learn to recognize the words if they see them written, but may still not be able to say any of them or to discriminate between the initial sounds. If they can learn to associate recognition of the written symbol with its auditory pattern, they will then be able to say each word. Among the most successful, though slowest, procedures in this phase of retraining, therefore, has been drill in associating the motor pattern for a sound with recognition of its visual symbol. In the earliest stages, the group may learn to differentiate between [p] and [m], or [f] and [v], and between [æ] and [ou].

The drill is carried out in two ways. Patients must either pronounce correctly the symbol pointed to, or select the appropriate written symbol for a sound pronounced by the therapist or another patient. The concept of voiced and voiceless sounds can be reinforced by the use of different colored chalks, or by the use of block printing and script letters. If such recognition can be established, definite carry-over can be achieved as the patients' motor speech progresses. They can learn to produce many words by themselves when presented with only the visual stimulus of the written word.

Whenever a new consonant sound is introduced, it is usually presented in the initial position and combined with all vowel sounds which will be found in actual words. The same procedure is followed with the sound in medial and final position. The words selected should contain as few as possible additional sounds which the patients have not yet learned or for which they will not be able to produce temporarily acceptable substitutions.

Vocabulary Building. To vary the procedures and to equip patients with a useful vocabulary as soon as possible, groups of words are presented in related units. Such units may be based on greetings, names of people, food, clothing, parts of the body, etc., again including only those words which patients will be capable of producing with some degree of satisfaction. As the words are presented, the patients are encouraged to use them in appropriate situations. At first they will not be allowed to enter the therapy room until they say *hello*, nor to leave it until they say *good-bye* or *bye*. Constant repetition of the reply *fine* in answer to the question *How are you?* helps to make such patterns more automatic.

Complete sentences become a part of the regular drills as soon as the patients can combine two or three words. Although these sentences are based, as closely as possible, on the patients' needs, it sometimes helps to use simple sentences in speech drill textbooks. The patient is thus given support by being able to refer to something definite which he is capable of accomplishing. Material for therapy is also integrated with procedures of other groups which the patients attend, such as Elementary Oral Formulation, Elementary Reading, Writing, etc.

The usual procedure in presenting sentences for drill is for the therapist to write a sentence on the board, read it to the group while pointing to each word, and then solicit spontaneous speech attempts from members of the group. Help on particular sounds or words is then given to each patient individually as he needs it. The patients are then ready to say the sentence in unison.

In order to have a frame of reference on which to establish a consistent order of drill, these sentences may be based primarily on a specific sound. With an elementary motor speech group, meeting five days a week for 30- to 40-minute therapy periods, approximately two weeks are spent on an individual sound. Because of the aforementioned amnesic element characteristically present in severe cases of motor aphasia, however, previously learned sounds and words are constantly incorporated into current drills.

Techniques Used In Dysarthria Group

When a patient in the elementary group can initiate sufficient motor speech patterns to make himself understood in many speech situations but still has difficulty with articulation, he is 'promoted' to the group which is designed for the improvement of dysarthric speech.

A phenomenon which is responsible for the basis of most of the therapeutic techniques used in this group is that no patient in the clinic whose speech could be described as dysarthric has had total alexia. Alexia of various types and degrees *is* present to some extent in many of these patients, with the exception of those who are not aphasic, but its minimal nature allows the therapist to use reading material as a basis for drill in pronunciation.

The procedures in this group must have greater variety due to the wider range of individual differences and the higher language level on which these patients are capable of functioning. Exploring these differences constitutes the therapist's initial procedures. Patients are tested on all sounds and sound combinations. A record of their defective sounds is made and is explained to other members of the group. The speech difficulty of the patients with Parkinson's syndrome or multiple sclerosis, or whatever other type of neurological case is represented, is also explained.

Word Drill. In most instances of groups based on the problem of dysarthria, a sufficient number of patients will have defective articulation on individual sounds or consonant blends to warrant the therapist's preparation of special word lists for drill. Since all patients in the group can benefit in some way from such drill, typed lists of these words are given to each member for pronunciation practice. Polysyllabic words which present difficulty in pronunciation for any patient are handled in several ways. For some patients the most effective technique may be to

write the word on the blackboard, dividing it into syllables with correct spelling, and underlining those sounds or sound combinations which the patient does not produce accurately. For others, it may be necessary to divide the word using simplified spelling, e.g., *eks-pek-tay-shun* for *expectation*. Other patients may not be able to say the word at all if syllables are separated even in pronouncing the word. This is frequently observed in patients with paraphasia. Drill in correct accenting of syllables must also be an integral part of this practice.

Auditory Recognition. In this group as well as in the Elementary Motor Speech group, it has been found helpful to stress the teaching of sound recognition. Frequent review may involve recognition of the sounds of every letter in the alphabet plus additional consonant blends. Drills also include practice in discriminating between pairs of words such as *stable-staple, chair-share, jeep-cheap, raid-rate, can-cane, mop-mope.* This type of drill lends itself well to group participation on a game basis. Such techniques as the following have been used. The patients are given separate slips of paper, each containing a selected pair of words. A patient decides on one of the words and shows his selection only to the therapist, who then writes both words on the blackboard. It becomes the patient's task to pronounce the word he has selected accurately enough for identification by other members of the group. If he is successful, he is frequently asked to pronounce the other word of the pair.

Reversing this procedure, several pairs of words may be written on the blackboard and the patients required to identify the one in each pair pronounced by the therapist.

The auditory training accomplished in such game-type drills is extended even further in this group. The patients are all trained to listen to each other carefully, keeping in mind the specific difficulties of the patient who is reading. Part of their responsibilities in group procedures involves recognition of faulty articulation, nasality, unintelligibly rapid rate, or poor phonation.

Word Meanings. Because of the presence of semantic alexia in many of these patients, it is frequently an important adjunct to the speech therapy to include exercises in word definition. Some of the patients are totally incapable of pronouncing a word accurately until they comprehend its significance. When possible, clearly understandable definitions are sought from group members. If this does not prove satisfactory, all of the patients consult a dictionary, thus receiving indirect practice in other language functions.

Oral Reading. Reading material for use with this group has been somewhat difficult to select. It should be on a low enough grade level to prevent severe frustration in the greater number of patients who have some degree of alexia, but it should also be adult enough to sustain the interest of these same patients and of the patients with no alexia.

Since the group usually consists of between eight and 12 patients, meeting daily, longer reading units provide far better continuity than brief, one-page reading selections. Graded textbooks, however, have proved of limited value, since many of the patients have attended the group consistently for over a year, and interest level could not be maintained on that basis. A procedure found to be highly adaptable to the needs of the group consists of the reading of plays. Cata-

logue descriptions are carefully studied, and suitable plays selected on the following bases: large number of male characters (although it was found that the patients made no objections to reading female parts), minimal use of profanity and dialect, lightness of plot, and simplicity of language. Sufficient numbers of copies of plays were then obtained through hospital volunteer groups. The use of these plays provided excellently integrated therapy units.

At the beginning of each therapy session, patients with adequate language formulation ability are asked to review the events of the play which have already been covered. Their speech must be slow and distinct enough to be understood by all members of the group. Speaking parts are then assigned and the patients take turns reading.

Since the emphasis in this group is on pronunciation rather than on recognition of words, patients are given help on words which are unfamiliar or which they cannot recall. The therapist is generally aware of each patient's reading and pronunciation ability, and can usually determine whether the patient should be required to produce the word by himself or should be given help. When assistance is needed, the therapist should also be able to designate the patient who is to give the help. Selection of the patient may be based on either his ability or on his own need for such extra drill.

Magnetic wire recordings are occasionally made of procedures in this group, and this provides additional motivation for the patients, both when the recording is being made and when it is played back to them.

Benefits of the Group Therapy Program

Since the term dysarthria is a descriptive one and not indicative of a specific lesion, only general comments can be made concerning individual progress of patients in the Dysarthria group. All of the patients who remained in the therapy group for at least three months demonstrated definite improvement in pronunciation. The exceptions to this statement were the patients with multiple sclerosis who made slight and temporary improvement in pronunciation and control of articulation, but who made significant gains in morale. The aphasic patients made concomitant gains in auditory and visual recognition and comprehension.

The patient-load in the Dysarthria group has always been greater than in the Elementary Motor Speech group, and since the former group of patients, for the most part, has been closer to complete rehabilitation than the group with severe motor aphasia, and thus has not remained in the therapy program for as long a period of time, it is not practical to give specific progress reports on the individual patient. In the motor aphasia group, however, there have always been fewer patients and more of them have remained in the group over an extended period of time. Their progress can be more objectively noted.

When the elementary group for motor speech training was started, it consisted of five patients. Three of them are still in the group and have attended the Clinic regularly for approximately two years. They each received, at some time, individual therapy daily or several times weekly, in addition to group therapy in writing (motor function), word and number

recognition, basic arithmetic, etc. Their progress has been followed closely. Other patients have attended the group consistently for shorter periods of time.

Of the first five patients who comprised this group, two were fairly similar in several respects. Both had suffered cerebro-vascular accidents, one at age 43, and the other at age 50. One had been a university professor of romance languages, and the other a highly successful businessman with good educational background. The younger one had had almost total aphasia for about a year before entering the Aphasia Clinic for rehabilitation. By the time he was assigned to the group, he had regained enough auditory comprehension to be on the same level as the others. The older patient entered the Clinic within two months after his cerebro-vascular accident. At the time group therapy began, both of these patients exhibited complete motor aphasia, severe alexia and agraphia, and moderate auditory verbal agnosia. Both also had right-sided hemiparesis, necessitating retraining of the left hand for writing.

The language progress of these two patients has also been somewhat parallel. Both of them can now produce approximately 50 words in situations requiring spontaneous speech. They can each produce about 200 words when given the visual stimuli of the written symbol. Their ability to produce words with the assistance of another person has shown infinitely greater progress. Their willingness to attempt speech sounds is now unlimited. Both have progressed in reading comprehension from a stage of almost total alexia to approximately third grade reading level. Their writing ability has shown somewhat slower progress than other language functions.

A third patient had been among the first admitted when the Clinic opened in 1946. He had exhibited complete motor aphasia, agraphia, severe alexia, and moderate auditory verbal agnosia, due to cerebro-vascular accident. After about five months of training on an individual therapy basis, he had been discharged as having received maximum hospital benefit. In that length of time he had not only failed to develop any speech patterns or writing ability, but the apraxia of the speech musculature remained so severe that he never learned to imitate a single tongue, lip, or jaw position or movement. It was thought that the patient had bilateral brain damage which precluded the possibility of his regaining any speech or writing function. This patient returned to the Clinic about a year and a half later, however, when group motor speech therapy had been started, and he was accepted for therapy on a provisional basis.

The patient was able to attend the Clinic only three days a week. He followed this program for about one year. In that time he began to develop ability to imitate tongue, lip, and jaw positions. He could frequently, though not always, produce the vowel sounds of [a], [ɑ], [oʊ], [u], [i], [ɑɪ], and [ɑʊ]. He learned to produce the sounds of [p], [b], [m], [f], [l], [s] and [w]. He had difficulty combining the consonants and vowels, but learned to make intelligible approximations of the words *hello*, his name (*Louis*), *fine* (could not produce an isolated [n] sound), *bye*, and many other words as they were presented in drill.

A fourth patient assigned to this

group had no motor aphasia. He was 67 years of age and had suffered a cerebro-vascular accident which resulted in formulation aphasia severe enough to resemble motor aphasia, complete agraphia, and the type of semantic alexia which prevented him from saying or comprehending a word until he heard it. His auditory comprehension was on approximately the same level as that of other patients in the group. The benefits he received from participation in this group consisted largely of improvement in his spontaneous speech and in visual word recognition. His non-defective speech patterns served the purpose of stimulation and guidance for the other members of the group.

The fifth patient was the only woman aphasic veteran treated at this Clinic. She was 59 years of age at the time of entry to the hospital and had exhibited complete motor aphasia, among other defects, for 12 years prior to her admission. Her aphasia was due to trauma incurred in an automobile accident. Within two months after training had been started in the motor speech group, she could not only produce nearly every sound presented to her, but could initiate most of the words presented for drill in this group. She was then assigned to the Dysarthria group. Her progress in motor speech patterns, reading comprehension, oral formulation, and writing was gratifying during the year and a half she remained in the therapy program.

The rationale of group therapy will not be discussed here. The benefits deriving from group therapy for the language defects which have been discussed, however, are observable only after a longer than average period of time, and should receive some comment.

For the successful functioning of such groups, there should exist a high level of rapport between therapist and individual patient, and among all patients in the group. A permissive atmosphere must be established, and should exist in the attitude of the therapist and of the patients towards each other. It is also essential to integrate the group therapy procedures with the methods and content of other groups and of individual therapy. This is accomplished through regular staff conferences, the keeping of daily and weekly progress records, and frequent testing and recording for each patient.

It is only too frequently observed that the slow progress of a motor aphasic patient who is trained only through individual therapy is apparent to no one but his therapist for a long period of time. The patient lacks the confidence to attempt the speech sounds learned in such a situation. In the group situation, however, he becomes aware of the fact that others, with equal or better social, educational, and professional backgrounds than his, suffer from a similar, acutely embarrassing defect. He gains security and is immeasureably more willing to attempt speech in the presence of others who observe and understand his daily progress.

The stimulation and challenge of competition is another highly motivating factor possible only in the group situation. The patients in both the elementary and more advanced groups vie with each other for the opportunity to attempt accurate production of the sound or word requested by the therapist. These status or prestige strivings on the patients' parts to gain recognition from the therapist and other patients, serve a valuable purpose in accelerating speech progress.

The problem of individual differ-

ences which is present in any group-teaching situation, is even more sharply accentuated in aphasia retraining. An awareness of each patient's type and degree of aphasia is essential before the therapist can adapt material to the varying degrees of ability, progress, and response in the group situation. The patients can benefit, however, by learning to share the responsibility for handling these individual differences. Their feeling of confidence and sense of security is increased when they are able to assist another patient in the production of a word or sound which they are capable of demonstrating. They also derive benefit from observation of correct speech patterns in other patients.

As each new patient who enters the group is introduced to the other members, his language difficulties are frankly and openly discussed. The defects of the others are also explained to him. Particular abilities of each patient are also explained, as in the case of the patient who has no motor aphasia but has severe enough formulation loss as to appear motor aphasic. His ability to pronounce words perfectly must be understood by the others in order to avoid greater frustration for them. In some cases it is found necessary for psychological reasons to give greater assurance to one patient than his performance warrants. If this technique is observed and reacted to by more alert members of the group, the particular need of that patient for such supportive measures is explained, and group cooperation sought in the absence of the patient in question.

In both of the groups discussed here, the morale factor has always been simpler to cope with than in individual therapy. The constant approbation and assurance of progress so desperately needed by most aphasic patients do not have to come from the therapist alone. The other patients are always ready and eager to assure their fellow patient of the quality of his performance. The patient thus assured also seems to respond more trustingly to commendation by his peers than to evidence of progress presented by one who represents 'teacher' and whose speech is superior.

Again as a result of group therapy, greater carry-over of relearned language functions and adjustment to the world of normal speech can be achieved by aphasic patients. At this facility, which is relatively close to the motion picture industry, the patients are frequently exposed to visits from movie personalities. Approximately every two weeks a well-known actress is brought out to the Aphasia Ward. An interview is conducted through the technique of having each patient ask the celebrity a question. The patients are coached on these questions in their group therapy periods, and none are excused from participation in the activity. The session is recorded and later played back to the patients. The morale value is frequently tremendous when a patient with severe motor speech difficulty realizes, by the fact of the answer he receives, that he has been able to make his question understood. The patients are given the support of an ever-present therapist during these proceedings, as they are during the frequent restaurant parties which they are invited to attend. Preparation for the latter includes group practice in saying the names of foods and 'ordering' from an actual menu card.

Since most aphasic patients, no matter how uninhibited in the permissive atmosphere of the clinic, tend to withdraw from language situations with

the general public, they are exposed to frequent observation by professional and non-professional visitors during group therapy periods. This helps to hasten their social adjustment and to make them feel less insecure in speech situations. This type of observation also serves as a good teaching motivation for the wives and relatives of patients who can provide additional help for the patients.

Conclusion

The author hopes that some of the observations made in this article will prove helpful to those who may undertake the responsibility for the speech rehabilitation of a large number of aphasic patients. The techniques described may serve as basic guideposts, but represent only the initial framework upon which the individual therapist may reconstruct the language facility of aphasic patients, according to his own ingenuity and resourcefulness.

The rewards of group therapy at this Aphasia Clinic have been gratifying. A system of therapy that grew out of the necessity for providing adequate retraining for a large group of patients over a period of several years has become an integrated and well-functioning program.

Reference

1. Eisenson, J. Prognostic factors related to language rehabilitation in aphasic patients. *JSHD*, 14, 1949, 262-265.

Notice To Members And Non-Members Of ASHA

New membership regulations are now in effect. At the 1950 Annual Convention the Association voted to put its reorganization plans into operation on January 1, 1951. The formal actions are reported in the minutes of the Council and Business Meetings printed on pages 84-87, 89-90 of this issue. It is important that they be given careful study.

As far as membership is concerned the most significant change is that a person without clinical training may now become a voting member, while certification of the clinical competence of a member, in speech, in hearing, or in both, is accomplished by mechanisms other than membership requirements. In other words, ASHA now exists formally as a learned society as well as a professional society.

Members are urged to make this new status known to any present nonmembers who have interests in the sciences and pathologies of speech and hearing.

A Clinical Auditory Training Program

Albert F. Johnson
Bruce M. Siegenthaler

FOR THE PAST several years the Hearing Division of the University of Michigan Speech Clinic has been offering rehabilitative services to the hard of hearing. One of these services is an auditory training program for hearing aid users. This article presents the series of lesson plans used in this training.

The program is designed to serve adventitiously deafened adults who have moderate degrees of hearing loss and have recently acquired individual hearing aids. The goals of the training are:

1. To improve personal-social attitudes and relationships by understanding and accepting one's hearing problem.
2. To learn the care, operation, and limitations of the hearing aid.
3. To increase tolerance for amplified sound.
4. To improve sound localization ability.
5. To improve perception of speech by training with the use of a hearing aid.

Lesson Plans

Lesson 1. Orientation.

1. Check of individual hearing aids for proper adjustment.
2. Explanation of clinical procedures.
3. Statement of goals of training.

Discussion of the problems of adjustment to a hearing loss.

Lesson 2. The care and use of the hearing aid: a discussion with diagrams, models, and demonstrations.

1. Makes and models of instruments.
2. Basic principles of operation.
3. Batteries.
4. Cords and earmolds.
5. Microphones and receivers.
6. Volume and tone control adjustments.
7. Wearing and handling the aid.
8. Trouble shooting.
9. The limitations of the hearing aid.
10. Adjustment to the hearing aid.

Reading assignment: ***Ways to Better Hearing*** (*1*), pp. 5-14, 32-37.

Lesson 3. Auditory discrimination test.

1. Class members arrange themselves in a semi-circle about six feet from the teacher.
2. Hearing aids are adjusted for the most comfortable listening level.
3. The teacher reads the test items in a conversational voice.[1]
4. Each person writes the words he hears, but does not watch the speaker's face.
5. Tests are scored for percentage of items written correctly.

Lesson 4. Discussion of reading assignment. Anatomy and physiology of the ear.

1. Structure and function: normal reception of sound, eustachean tube.

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[1]The test in current use is derived from an experimental study (*4*). Other available articulation tests may be used.

2. Pathological conditions: nerve and conduction deafness, otitis media, tinnitus, vertigo, otosclerosis, etc.

Reading assignment: *Ways to Better Hearing* (*1*), pp. 71-72.

Lesson 5. Discussion of reading assignment. General phonetics of speech.

1. Classification of speech sounds.
2. Difficult versus easy sounds and words.
3. Homophonous words.

Group conversation practice in preparation for speech recordings.

Lesson 6. Speech sound and conversation practice.

1. Listing of common words containing [p] and [b] in initial, medial, and final positions.
2. Discussion of the acoustic aspects of [p] and [b].
3. Practice hearing and recognizing the above sounds in isolation.
4. Practice in discrimination and perception of words differing only in the use of the above sounds in initial, medial, and final positions.
5. Practice listening to sentences and connected speech using the above sounds in key positions.

Reading assignment: *Ways to Better Hearing* (*1*), pp. 55-66.

Lesson 7. Discussion of reading assignment. Make speech recordings of class members with tape recorder. Play back recordings and discuss them.

Lesson 8. Relationship between speech and hearing.

1. Importance of hearing for learning and understanding speech.
2. Deterioration of speech accompanied by hearing loss.
3. Speech conservation for the hard of hearing.
4. Discussion of aspects of normal speech and voice.
5. Analysis by the class of individual speech recordings.

Reading assignment: *Ways to Better Hearing* (*1*), pp. 15-24.

Lesson 9. Discussion of reading assignment. Speech sound and conversation practice.

1. Speech sounds [f] and [v] as outlined above.
2. Speech sounds [θ] and [ð] as outlined above.

Lesson 10. Basic theory and practice of hearing aid selection.

1. Interpretation and discussion of individual audiograms and speech reception test scores.
2. Consideration of the cause, duration, and extent of loss.
3. Choice of air or bone conduction receiver.
4. Selection of ear to be fitted.
5. Hearing aids as sound amplification devices.

Give experience assignments.[2] Assignments include:

1. Listen to three 15-minute radio news broadcasts.
2. Listen to three half-hour variety programs.
3. Listen to three radio music programs of half an hour each.
4. Use the telephone.
5. Attend a movie and sit in four different places in the theater.
6. Attend church or a public lecture.
7. Attend a musical concert.
8. Go shopping.
9. Use the aid in a crowd of people on a busy street.

Lesson 11. Discussion of experience assignments.

1. Observations of volume and tone control adjustments.
2. Successful and less satisfactory experiences.
3. Discussion of new or unusual experiences.

Sound localization practice:

1. Class members close their eyes while

[2]The experience assignments are designed to give directed listening practice outside the classroom. The individual is required to carry out each assignment and record his experiences and observations on the assignment sheet.

the teacher moves about the room speaking to them. Class members indicate the direction from which the teacher's voice seems to be coming, and verify their judgments.

2. Other class members act as speakers for the same exercise.
3. One person sits in the center of the room with eyes closed. Others take positions about the room and speak to him. Center person identifies locations of the others, and verifies his judgments.
4. Other class members sit in center, and repeat the exercise.

Lesson 12. Speech sound and conversation practice.

1. Speech sounds [t] and [d] as outlined above.
2. Speech sounds [s] and [z] as outlined above.

Additional assignments to be completed by Lesson 15:

1. Listening practice to news and variety radio programs for a total of two hours.
2. Listening practice in a busy store.
3. Listening practice in a movie.
4. Observation of traffic noises.

Lesson 13. Speech sound and conversation practice.

1. Speech sounds [ʃ] and [ʒ] as outlined above.
2. Speech sounds [tʃ] and [dʒ] as outlined above.

Lesson 14. Sound identification practice.

1. Radio sound effect records are used. As each record is played the sound is discussed and class members attempt to identify it. All judgments are verified.
2. Listening practice to sound dramas.[3]

Reading assignment: *Ways to Better Hearing* (*1*), pp. 41-45, 73-77.

Lesson 15. Discussion of experience assignments. Discussion of reading assignments. Listening practice to live voice.

1. A humorous short story is read to the class for general comprehension.
2. Readings by other class members.
3. Observations of the readings in terms of speech and hearing.

Lesson 16. Speech sound and conversation practice.

1. Speech sounds [l] and [r] as outlined above.
2. Speech sounds [k] and [g] as outlined above.

Lesson 17. Repeat auditory discrimination test. General oral review by question and answer method.

Lesson 18. Field trip.

1. The trip is under the direction of the teacher.
2. A tour is made of the immediate locality and includes stores, campus buildings, and other points of interest.
3. Attention is given to the many different environmental sounds and hearing aid adjustments to them.

Reading assignment: *Ways to Better Hearing* (*1*), pp. 37-40, 67-70.

Lesson 19. Discussion of field trip. Discussion of reading assignment. Recorded speech and music listening.[4]

Lesson 20. Review of speech sound and conversation practice. Discussion of reading assignment. Discussion of auditory discrimination test. Final review and question period. Discussion of service agencies. Discussion of service for the hearing aid, e.g., guarantees, obtaining batteries, and repairs.

Discussion

Although the lesson plans provide a full schedule of training, frequently it is found advisable to alter or supplement the program with the following activities:

1. Instructional movies (*5*).
2. Telephone listening practice with hearing aid.
3. Speech sound and conversation practice with additional speech sounds.

[3]A sound drama is a specially prepared three- to four-minute recording of a series of sound effects which are arranged to tell a story or illustrate an event.

[4]*Tubby the Tuba*, Cosmo Record Album DMR-101, or *Peter and the Wolf*, Columbia Masterworks Album M-477, are recommended.

4. Pitch discrimination practice using a pure-tone audiometer.

Attention is called to *Ways to Better Hearing*, by Brentano (*1*), and *Hearing is Believing*, by Heiner (*3*). These books are recommended for supplementary reading assignments. Source material for the lessons on speech sound and conversation practice may be obtained from *Voice and Articulation Drillbook*, by Fairbanks (*2*). It is suggested that mimeographed material on care and use of the hearing aid, experience assignments, basic anatomy and physiology of the ear, and the relationship between speech and hearing be prepared for distribution to the class.

Modification of goals and procedures often is necessary to serve the best interests of the patient and to meet individual needs. Special consideration is given to the following:

1. Speech difficulty often accompanies a reduction of hearing acuity, and may require attention. Speech therapy can take three forms: corrective work incorporated into the training schedule, individual speech correction in extra classes, or enrollment in an intensive speech therapy program.

2. Foreign language influence together with a hearing loss may present difficulties. Under such circumstances the scope of class material is necessarily limited and class procedures are paced to insure comprehension.

3. Limited mental capacity may be a complicating factor. For the patient with this problem the course is modified considerably. Learning to handle his aid, adjust the volume control, and change batteries, may become the goals of training.

4. A person may enroll after failure of a fenestration operation. Fortunately, a hearing aid usually remains a hopeful form of therapy. In this case the important goals are to soften the blow of the surgical failure and to instill a realization that adequate communication skills can be developed. Emphasis is placed on the anatomical and physiological information in the course.

5. Occasionally someone is enrolled who does not have or does not need an instrument. In general, his hearing loss is mild but progressive. He desires the training as assurance against the time when a hearing aid will become necessary. Relatively minor changes in class procedures are necessary for such a person.

Many changes in the behavior, attitudes, and skills of patients occur during the training program. The following are observable:

1. A person may come to the class with extreme withdrawal tendencies, be reluctant to associate with others, and display feelings of rejection. The informal mental hygiene which develops during the program through associations with other hard of hearing persons and understanding teachers produces remarkable changes in behavior.

2. At the beginning of the training a patient frequently reveals lack of ability to adjust and handle his aid. These skills are learned quickly, and by the end of the training he is able to operate his hearing aid with ease and confidence.

3. Often a beginning patient requires his instrument set at a low level of acoustic gain with suppression of annoying frequencies. As the training progresses he usually reports less annoyance from amplified sound and loud noises. With practice he finds he can use a higher volume setting and

less restricted frequency-intensity range.

4. Increased skill is observed frequently in sound localization ability. A patient usually has little initial ability in this respect, but develops it with experience.

5. The auditory discrimination test and re-test results of the 20 persons most recently enrolled in the training program indicate a general increase in discrimination ability.

Reports from former patients are indicative of the general effectiveness of this training program. Their support and praise gives weight to the belief that it is serving the needs of the hard of hearing.

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Type Of Birth As Related To Stuttering

John L. Boland, Jr.

THIS STUDY seeks to discover whether the number of instrument births among a group of stutterers is significantly larger than would be expected in the general population and whether, therefore, instrument birth and stuttering may be related.

The literature on type of birth indicates, almost without exception, that children with 'unfavorable personality characteristics' are more likely to have been delivered with the help of instruments than to have been born spontaneously. Wile and Davis (*10*) studied 500 children from the Children's Health Class at Mt. Sinai Hospital and reported that the children with instrument births appeared to show a general reduction of 'personality energy.' A physical trauma factor seemed to be evident in the 'heightened restlessness, poorly controlled hyperactivity, and the contraction of personality forces' in these children.

Schroeder's study (*8*) seems to confirm the findings of Wile and Davis. He found that distractibility and hyperactivity were characteristic personality traits of children born with the use of instruments but that no behavior difficulty seemed to be specific. Despert (*2*) studied the histories of 35 'anxious' children of nursery school age and reported that 19 of them (approximately 54%) were delivered with the aid of instruments (other studies have computed that approximately 10%-30% instrument births can be expected in the general population).

In seeking to analyze the apparent relationship between instrument birth and personality, Wetterdal (*9*) examined the records of large numbers of children delivered with forceps and compared them against an equal number of children delivered spontaneously. He concluded that much greater incidence of serious mental defects was associated with intermediate and high forceps delivery than was associated with low forceps delivery or spontaneous birth.

PROCEDURE

The present study was done from the case histories of 209 stutterers who applied for admission to the Speech Clinic, University of Michigan, between July, 1940, and April, 1949. Approximately 300 stutterers applied for admission during this period but the case histories of only 209 contained information about type of birth, although such information is requested from all applicants.

The Speech Clinic Questionnaire served as the primary source from which the birth information was compiled. This Questionnaire is usually completed by the mother of the

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patient, although it is sometimes completed by the father or by a professional worker of a social agency. In some very few cases, the Questionnaire was completed by the stutterer himself.

The records of 209 stutterers showed a sex ratio of approximately four males to one female. The mean age was approximately 17 years with an age range of 4 to 56 years. All of the subjects were of a 'white' race and approximately 82% of them resided in Michigan.

Results

Twenty-two per cent of the group of 209 stutterers were reported born with the aid of instruments. Table 1 shows how this percentage compared with similar information compiled on various other groups by other investigators.

The instrument birth data on births at Mt. Sinai Hospital (*10*), in 'private practice' (*10*), New York City (*10*), a Bronx hospital (*3*), Philadelphia (*4*), and Johns Hopkins Hospital (*5*), show an instrument birth percentage range of 20% to 27.8%. It should be noted that three of these studies were done on information about children who were born in hospitals. The 'private practice' survey and the Philadelphia study were done on children born in large cities where hospital facilities are relatively numerous.

Information from a more rural community, the Iowa state survey (*6*), indicates that instrument births accounted for only 11.8% of all births. This relatively low percentage of instrument births in Iowa may be accounted for by the fact that hospital facilities are not as readily available in all parts of Iowa as they would be, say, in New York City.

All birth data presented in Table 1, with the exception of the data for the group of 209 stutterers, were taken

Table 1. Types of birth of 209 stutterers compared to samples of the general population.

		Percentage of:			
	Total Cases	*Spontaneous Births*	*Instrument Births*	*Premature Births*	*Caesarean Births*
Stutterers	209	78 (corrected: 67)	22 (corrected: 33)	5.66	1.43
Mt. Sinai	500	76	24		1
Private Practice (New York City)	500	80	20		1.6
New York City	21,095	75.4	24.6		2.7
Bronx Hospital	10,000	76.5	24.5		2.79
Philadelphia (1931-1933)	68,733	72	27.8		2.5
Iowa (1930-1932)	91,738	88.2	11.8		1
Johns Hopkins Hospital, (consecutive white births, 1907-1929)	7,805	75.95	24.05	4.75	

from the records of doctors and hospitals and can be expected to be relatively reliable. It is pertinent at this point to question the comparative reliability of birth data for the stuttering group. It is important to remember that the birth information on the stuttering group was obtained from the Speech Clinic Questionnaire, which was completed, usually by one of the parents, years after the birth of the child, *and depends for its accuracy on the memories of the parents.*

In this connection, Pyles, Stoltz and MacFarland (7) have done a study on the accuracy of mothers' reports of birth and developmental data. Two hundred twenty-five mothers with children 21 months old were interviewed and asked for information about certain factors attendant at the births of their children. Primary records complied at the time of birth by physician, hospital and mother were available for comparison. The writers reported that *only two-thirds of the mothers delivered with instruments reported that fact at the 21-month interview.*

If the thesis suggested by Pyles, Stoltz and MacFarland can be applied to the present situation, as it seems logical to do, the 22% instrument births for the stuttering group can be corrected by one-third to obtain a figure of 33%. The assumption can probably be made that this correction has improved the accuracy of the instrument birth percentage in the stuttering group so that this percentage can, with relatively greater statistical reliability, be compared with instrument birth percentages compiled from the records of physicians and hospitals.

This provides two percentages of instrument births for the 209 stutterers: the 22% instrument births compiled directly from the Speech Clinic Questionnaire, and the corrected figure of 33% which is based on the assumption that one-third of the stutterers who were born with the aid of instruments were not so reported on the Questionnaire.

When the 11.8% instrument births reported by the Iowa survey (*6*) is compared with the *uncorrected* 22% instrument births in the stuttering group, the percentage of instrument births is found to be significantly higher in the stuttering group (Critical Ratio 4.57; probability of occurrence by chance: less than 1/1000). The difference would be even more significant if the *corrected* 33% instrument births for the stuttering group was used.

When the *corrected* percentage of instrument births for the stuttering group is tested against Peckham's 24.05% (24.05% is very close to average percentage reported by urban groups) a Critical Ratio of 3.02 is obtained (probability of occurrence by chance: less than 1/100). There is some justification then, for believing that there is a significantly larger number of instrument births in this stuttering group.

Although the percentage of premature births obtained from this study appears larger than that reported by any of the other investigators whose figures are shown in Table 1, the differences are not significant. The percentage of Caesarean births obtained seems to fall within the range established by the other investigators.

Conclusions

a. A significantly larger number of instrument births was found among a group of 209 stutterers than was found in a study of instrument births for the state of Iowa.

b. A significantly larger number of children delivered with instruments

was found among a group of 209 stutterers than was found among other large samples of the general population born in hospitals, *if it is assumed that one-third of mothers whose children were delivered with instruments will fail to report that fact 21 months or more after the birth.*

c. The results of this study indicate that instrument birth and stuttering may be positively related, to the extent expressed by the probabilities quoted above.

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The Pitch And Duration Characteristics Of Superior Female Speakers During Oral Reading

John C. Snidecor

EXPERIMENTAL studies of the speaking voice have been limited almost entirely to male subjects. With respect to pitch and duration, it has been assumed that the female voice, apart from the usual differences in pitch level, is similar to that of the male, but similarities have not been demonstrated, nor has the difference in pitch level been quantified satisfactorily. The work of Cowan (*1*) might appear to require an exception to this statement. The nature of the performances studied in that investigation, however, do not allow for direct comparisons between the voices of the two sexes. The results of this study, furthermore, do not describe the characteristics of the female voice as it interprets non-emotional material. Because of this almost complete lack of information, the purpose of this study is to describe objectively the pitch and duration characteristics of the voices of superior women speakers reading factual material, and to compare these data with previously established values for superior male speakers.

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PROCEDURE

The reading material in this investigation is the same prose passage used by Pronovost (*9*), Curry (*2*) and McIntosh (*7*). The entire passage as reproduced below was read by each subject, but only the italicized portion was experimentally studied.

> When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. *The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it.* When a man looks for something beyond his reach, his friends say he is looking for the pot of gold at the end of the rainbow.

The selection of subjects parallels that in the studies of Pronovost (*9*) and McIntosh (*7*). It was considered essential that the women speakers evidence comparable superiority in general performance with the men speakers. To this end, 25 adult female subjects were selected for their superior general effectiveness in speech and voice usage. These subjects were tested rigidly in a procedure that included an articulation examination, an oral reading performance, and an impromptu speech. From this group, eight subjects were selected who demonstrated superior voice usage.

With the subject and the experimenter in a soundproof room, phonograph recordings were made of four readings of the prose passage for each subject. In each case ample time was allowed for the subject to practice the passage both silently and aloud. The following directions were given before each reading:

> Read the passage as well as you are able, as if you were reading to an audience of approximately 25. A phonograph recording will be made.

A five-minute interval was allowed between each of the four performances. The best of the four records for each of the eight subjects was then selected by the method of ranking, with 10 trained observers serving as judges. Each subject's best recording was retained for further consideration and the other three recordings were discarded.

The final selective process consisted of ranking the eight recordings by the method of paired comparisons. Fourteen trained observers compared each reading twice with each other reading, once before and once following; the pairs were presented in random order. On the basis of this procedure, the six highest ranking recordings were selected for further study.

The phonophotographic technique originated by Metfessel (*8*), modified by Simon (*10*), and Lewis and Tiffin (*6*), and electrified by Cowan (*1*) was used. The utilization of this technique gives a photographic record of fundamental sound wave frequencies. In this study the average period length for consecutive intervals of 0.038 seconds each was measured. The over-all error was negligible, being of the order of 0.5 per cent, or 0.04 of a tone. Frequency conversions from period-length measurements, and other means of analysis, were applied to the data as described by Fairbanks (*4*).

Results

Pitch Level. Measures of central tendency, in terms of median pitch levels, are presented in Table 1 for the voices of the six female speakers used in this study, and for the voices of the six men studied by Pronovost (*9*). Median pitch levels are stated in tones above 16.35 cps, the zero frequency level. The values are ranked in descending order.

Inspection of the lower part of Table 1 indicates that when the distributions are considered compositely, the median pitch levels of the women's voices are 3.95 tones higher than the median pitch levels for men's voices. When the median pitch level of each woman is compared to that of each man, there is a mean difference of 3.89 tones between the medians of the two sexes. Individual differences of some magnitude are indicated by the fact that the lowest median pitch level for women is only 2.53 tones higher than the highest median level for men, whereas the highest median for women is 5.29 tones higher than the lowest median for men. Critical ratios of a high order indicate that there is a reli-

Table 1. Median pitch levels for men and women. Tones above zero frequency level, 16.35 cps.

Men Subjects	*Median pitch level*	*Women Subjects*	*Median pitch level*
C	18.92	F	22.80
B	18.51	C	22.48
D	18.46	B	22.26
A	18.17	D	22.20
F	17.77	A	21.32
E	17.51	E	21.45
Composite	18.24		22.19

able difference between the medians for each of these 36 comparisons. This finding of approximately four tones, or two-thirds of an octave, difference between the median pitch levels for the voices of women and men is in contrast to the general assumption of a one-octave difference. The highest female pitch level is less than an octave higher than the lowest male pitch level.

When the differences between median pitch levels for each sex are compared in Table 1, it will be noted that they are small. For the male subjects, the difference between the highest and lowest median pitch level is 1.41 tones; for the women, the difference is 1.35 tones. Although not conclusive proof, this finding suggests that the preferred pitch levels for the superior voices of both women and men fall within relatively narrow limits.

There is a reasonable possibility that the median pitch level of a given speaker may be relatively independent of how that voice may be classified in terms of its effective singing range. In support of this possibility it should be noted that the female voices studied

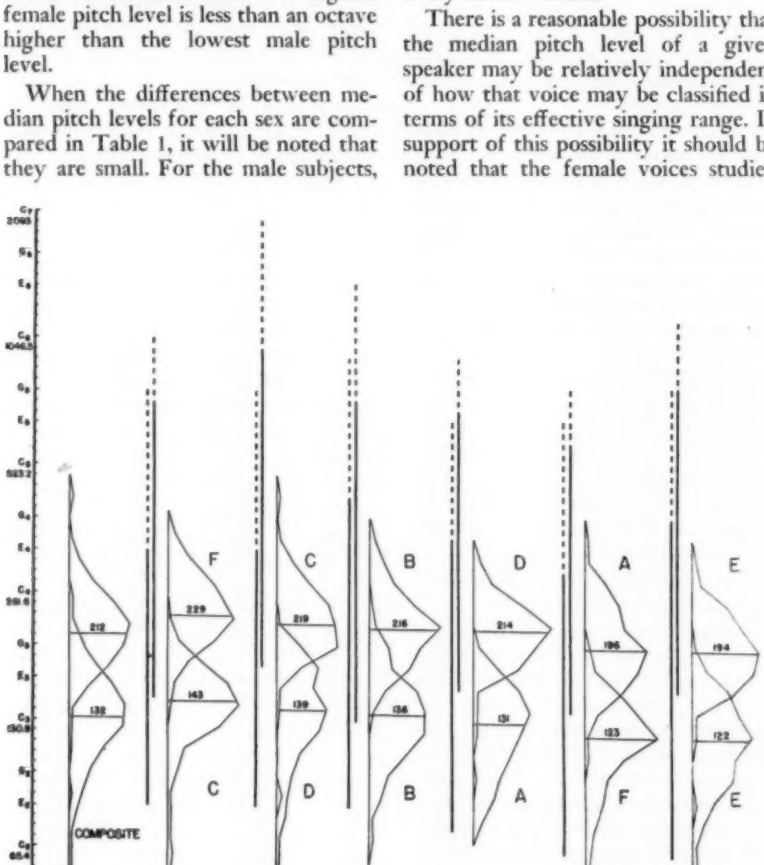

FIGURE 1. Superimposed composite and individual pitch distributions for the oral reading performances of men and women speakers. Medians are indicated by horizontal lines across each distribution, and labelled in cycles per second.

included the usual pitch categories of the female singing voices of soprano, second soprano, contralto, and alto, and although the highest median pitch level for speaking was found for a subject who stated that she sang soprano, the lowest was revealed for a subject reporting that she sang second soprano. The second, third, fourth and fifth ranking median pitch levels were found for subjects reporting themselves as singing second soprano, alto, soprano, and contralto, respectively. Inspection of the literature on the singing voice does not reveal optimum or average pitch levels for each of the part categories here represented, but it does appear clear that for these speakers the preferred median pitch levels for speaking fall within a narrow range of tones regardless of the classification of the individual singing voices. The male voices studied by Pronovost (9) were not categorized in terms of the part sung, so no analogous comparisons can be made.

Figure 1 is a graphic representation of the distributions of pitches used. The horizontal lines represent the same median pitch levels stated in Table 1, except that here they are given in cycles per second. The superimposed distributions on the left side of the figure are composites for all of the pitches used by the women and men. From left to right, the other distributions are those of the women and the men in order of descending median pitch level. Musical tones are plotted along the ordinate, and the percentage of total pitches used along the respective abscissae. On the left side of each pair of individual distributions, singing ranges are represented by a solid line for the normal ranges and by a broken line for the falsetto register. From an inspection of Figure 1 it will be noted that the distributions of pitches used by the women and men speakers overlap to a considerable degree. In order to arrive at a value representative of the amount of this overlap, the highest pitch used by each male was interpolated into the distribution of pitches for each female. The average of these 36 computations indicates that 50 per cent of the pitches used by the women fell below the highest pitches used by the men. Individual amounts of overlap vary considerably, however, 18 and 79 per cent being the extreme values.

TABLE 2. Percentage of total singing range below median pitch level.

Women subjects	*Percentage of range below median*	*Men subjects*	*Percentage of range below median*
F	22	F	28
B	21	A	27
A	20	C	25
D	17	D	23
E	11	E	23
C	9	B	21
Average	18		25

Table 2 expresses the fraction of the total singing range, including falsetto, which lies between the median pitch and the lowest sung tone for both women and men, the mean for the six women subjects being 0.18, and that for the men, 0.25. Fractions for each individual are stated in order of decreasing magnitude. In arriving at these values, each subject sang down the scale and up the scale as far as it was possible to sustain a tone. From the piano keyboard a notation was made in terms of the nearest semi-tone reached in each of three trials for the highest sustained tone, the lowest sustained tone, and the last tone of the normal register. The trials were sep-

arated by five-minute intervals. It may be noted from Table 2 that the median pitch levels for women, considered compositely, are relatively lower in the total singing range than those of men, and the fraction of their total range which lies between the median and the lowest sung tone is more variable than this same measure for the men.

A method of predicting the natural pitch on the basis of this relationship has been shown by Pronovost (*9*) to be one of the most satisfactory clinical methods of arriving at the natural pitch level of the male speaking voice. The above findings, however, suggest that application of this 25-per-cent-method to the female voice should be the object of more study before a definitive conclusion can be reached.

The practical application of this technique for estimating natural or optimum pitch level for male and female voices is stated by Fairbanks (*5*).

Variability of Pitch. Table 3 presents two appropriate measures of pitch variability. Observation of the lower part of the table indicates that the mean S.D. of the distribution of pitches for women is 1.52 tones, or approximately one-third of a tone less than the mean S.D. of 1.89 tones for the distribution of pitches used by the males. When individual differences are considered, five of the six women evidenced lower values for the standard deviation of pitches used than all but one male value.

The upper part of Table 3 expresses the extent in tones of the median percentage of pitches used. Briefly stated, the value for the median 10 per cent is the range in tones which subtends the pitches distributed between the 45th and the 55th percentiles, etc. It will be seen from Table 3 that in all cases the values are smaller for women than for men. This difference becomes progressively greater for men for each range up to and including the median 90 per cent. The median 100 per cent, which is synonymous with the total pitch range, shows a difference of only 0.06 tones in favor of the men. This small difference in total range confirms the suggestion by Lewis and Tiffin (*6*) that the total pitch range does not adequately describe pitch variability. If values for the median 90 per cent are considered to describe the 'functional' pitch range, as suggested by Fairbanks (*4*), the mean range of the female subjects is seen to be 1.25 tones narrower than that of the comparable male speakers, a difference amounting to an increase of 25 per cent in favor of the latter sex. Among the individual subjects the widest median 90 per cent range of the females is exceeded by five of the six male subjects.

It is difficult to explain why the voices of superior women speakers are less variable in pitch than the voices of

TABLE 3. Extents of median percentages* and mean standard deviations of pitches used. Composite distributions; all values in tones.

Median Percentage	*Women*	*Men*	*Difference*
10	.38	.46	.08
20	.79	.92	.13
30	1.23	1.43	.20
40	1.70	1.97	.27
50	2.18	2.52	.34
60	2.71	3.16	.45
70	3.36	3.82	.46
80	4.07	4.92	.85
90	5.02	6.27	1.25
100†	10.46	10.52	.06
Mean S.D.	1.52	1.89	.37

*Distributed equally above and below the median.

†Equivalent to total pitch range.

superior men speakers. Previous data from McIntosh (7), however, indicates that low pitched performances are relatively lacking in pitch flexibility, and it will be recalled that the speaking voices of these female subjects are relatively lower pitched in their total singing ranges than those of the male subjects.

Phonations, Inflections and Shifts. A plot of pitch curves, shifts and pauses allows for objective measurements of (a) the extent and duration of phonation, (b) the extent, duration, and direction of inflections, and (c) the extent of shifts, both within and between phrases. All measures, excepting those concerned with phrase relationships, are defined by Fairbanks (*4*). Phrases in this study were determined in the following manner: Pauses which were used by at least one-half of the speakers and which were longer than adjacent pauses were selected arbitrarily as inter-phrasal pauses. A more complete consideration of the determination of phrase limits is given by Snidecor (*12*).

Simple inspection of pitch curves for female and male voices indicates similar pitch and duration patterns, a difference of approximately four tones in pitch level, and greater flexibility in the male voice.

From refined measurements of pitch curves it may be stated that men exceed slightly or are equal to women in extent of phonations and shifts, excepting only downward shifts between phrases in which there is a difference of only 0.10 tones in favor of women. In general, the differences in favor of men are not great, but their consistency presents additional evidence that the women's voices were less variable than those of men.

That the performances of men and women are similar in respect to these measures is noted from the fact that extent of upward shifts within and between phrases tends to be greater than the extent of downward shifts. Women, however, evidence an equal mean extent of upward and downward inflections. For men the downward inflections are one-third of a tone greater in mean extent than are upward inflections.

When pitch characteristics at the end and beginning of phrases are considered, both men and women have more upward than downward shifts between phrases, with men exceeding women in the number of such upward shifts. The percentage of downward shifts is the same for both men and women. One-fifth of the shifts for women are level, whereas the men have no level shifts. In regard to intonations, the data for women indicate that they end phrases more often with downward pitch movement, and begin phrases more often with upward pitch movement. In impromptu speaking and reading, Snidecor (*11*) noted that men were found to end phrases about equally often with upward or downward pitch movement, but to begin phrases more often with upward pitch movement. This suggests that phrases in different types of performances may characteristically begin with upward pitch movement, but that the manner in which phrases end with respect to pitch movement may vary from one type of performance to another.

Rate of Pitch Change and Number of Changes. In respect to rate of pitch change, women's voices have a slower rate of pitch change than have the men's voices. For women's voices the mean rate of change was 9.55 tones per second, whereas men's voices changed in pitch at the rate of 12.27 tones per second. To describe this measure, one

may think of the relative rate of pitch change as represented by the steepness of the pitch curve as it moves upward or downward. In this connection McIntosh (7) found that rate of pitch change was slower in less flexible readings than in normal readings. This difference in the rate of pitch change may be related to the fact that women's voices appear to be less flexible, as indicated by the measures of variability previously discussed.

In general the mean number of changes in the direction of pitch per second are fewer for women than for men.

Mean Measures of Rate. Table 4 states the results of gross time measures for the performances of the men and women subjects. Observation of this table indicates that the women read at a mean rate of 161.5 words per minute, a value which is very similar to that of the men. When these values are compared with norms reported by Darley (3), however, which are based on the oral reading performances of a random sample of college freshmen, the rate for women falls between the 35th and the 40th percentile, and the rate for men between the 45th and the 50th percentile. The third item in this table shows that the total phonated time is relatively longer for men, with a ratio of total phonated time to a total reading time of 0.75 for men and 0.63 for women. This value gives a measure of how much relative time is spent in phonation as compared to pause time in each performance. In general, voices with low ratios of total phonated time to total reading time will tend to be judged as more staccato than voices with high ratios.

TABLE 4. Mean measures of rate. Composite distribution.

	Women	*Men*
Words Per Minute	161.5	163.9
Total Reading Time	20.43	19.90
Total Phonated Time	12.93	14.84
Mean Ratio of Phonated Time to Total Time	.63	.75

Duration and Number of Phonations, Shifts, and Inflections. The mean duration of phonations for women is .40 seconds, whereas the mean duration of phonations for men is .75 seconds. This marked difference in the duration of phonations indicates that women's voices may be characterized as being more staccato than those of men.

There are more than twice as many level inflections for the women than for the men. Downward inflections are more numerous than upward inflections for both men and women, and in about the same proportion. Both sexes have more upward than downward shifts. Women have more shifts within phrases. With the exception of one subject, long downward inflections were noted that fell below the singing range as little as 0.60 of a tone to 6.55 tones. It is suggested that these tones which fall below the lowest sustainable sung tone may result from the relaxation of the vocal folds as phonations are ended.

SUMMARY

Six carefully chosen superior women speakers read a 55-word prose passage under controlled experimental conditions, and a phonophotographic technique was used to make a physical analysis of the pitch and duration characteristics of the performances. The data were compared to those previously reported for superior male speakers reading the same material, with the following results:

1. Pitch levels for the women's voices were found to be placed approximately two-thirds of an octave above the pitch levels of the men's voices.

2. The median pitch levels for each group of subjects were located within limits of less than one and one-half tones, which suggests that the preferred pitch levels for superior speakers may fall within relatively narrow limits.

3. The superimposed pitch distributions were found to overlap to the extent that, on the average, 50 per cent of the pitches used by the women were lower than the highest pitches used by the men.

4. That fraction of the total singing range between the median and the lowest sung tone was 0.18 for the women in comparison to 0.25 for men.

5. The voices of the women were, in general, found to be less variable in pitch than those of the men; this relative lack of variability may be a function of the relatively lower median pitch levels of the women. Total pitch ranges were approximately the same in both groups. The 'functional' pitch ranges of the men, however, were found to be greater.

6. The mean extents of phonations, inflections and shifts were found to be slightly less for the women than for the men speakers, with the exception of downward shifts between phrases, in which the women slightly exceeded the men.

7. In both sets of performances upward shifts exceeded downward shifts, both in number and in mean extent. Downward inflections were more numerous than upward inflections and were not markedly different in mean extent.

8. Both sexes used more upward than downward shifts between phrases, and the upward shifts exceeded the downward in mean extent. In the performances of the women, phrases ended more frequently with downward intonations, the mean extent of such movements exceeding that of the upward movements; they began more often with upward intonations, such intonations being greater in mean extent than the downward intonations. Comparable values were not available for the male subjects.

9. When compared to the men's voices, the women's voices were found to have a less rapid mean rate of pitch change, and fewer changes in the direction of pitch per unit of time.

10. Both men and women used slightly slower oral reading rates than that of the median subject in a random sample of college freshmen. In this respect the difference between the two sex groups was small.

11. Women's voices were found to have notably shorter mean duration of phonations; the ratio of phonated time to total time was lower than in the case of the men's voices.

12. The speaking voices of both male and female subjects encompassed pitches below the lowest tones capable of being sustained by the singing voice. Such pitches were found to compose approximately five per cent of the total pitches used in the performances.

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An Agreement On Printing Style

Articles dealing with lost or impaired hearing show great inconsistency in regard to the style of printing certain words which occur frequently. Some of these words are *lipreading (lip reading; lip-reading), speechreading (speech reading; speech-reading), preschool (pre-school), day school (day-school), hard of hearing (hard-of-hearing), and hearing aid (hearing-aid).*

In an effort to standardize printing style in this field, the undersigned editors have agreed to adopt the following forms for use in their publications:

lipreading	day school
speechreading	hard of hearing
preschool	hearing aid

This statement is released for simultaneous issuance in all publications that may be interested.

Bower Aly
Quarterly Journal of Speech
W. W. Bauer, M.D.
Today's Health
George M. Coates, M.D.
Archives of Otolaryngology
Powrie V. Doctor
American Annals of the Deaf
Ruth A. Eckhart
Journal of Rehabilitation
Grant Fairbanks
Journal of Speech and Hearing Disorders
L. M. Godard
The Hearing Eye
Thomas D. Houchin
The Lipreader
Milton M. Idzal
National Hearing Aid Journal
Francis E. Lord
Journal of Exceptional Children
Salvatore Di Michael
Rehabilitation Abstracts
William R. Parker
Modern Language Association of America
Alfred C. Schwab, Jr.
The Hearing Aid Industry
Helen Scriver
Hearing News
Austin Smith, M.D.
Journal, American Medical Association
Josephine B. Timberlake
Volta Review
Theodore E. Walsh, M.D.
The Laryngoscope

(Reprinted from the Volta Review, February, 1951)

Artificial Stutter

Bernard S. Lee

ENGINEERS have lately presumed to invent brains (*1*) and theorize (*5*) on the machine-like nature of physiological organisms. Recent applications of mathematics to the construction of binary computers and new concepts of the central nervous system have simultaneously provided information which invites speculation in fields formerly distant, such as psychology, neurophysiology, etc. In the course of operating a magnetic tape recorder, the writer found himself part of a new stuttering hybrid, half human and half electronic, and was encouraged to investigate the phenomenon further. A first report of this investigation has been made (*4*).

TECHNIQUE

In order to produce delayed speech feedback, it is necessary to return the speaker's speech to his own ears approximately one-quarter second after he has spoken. This is best accomplished by means of a magnetic tape recording and reproducing machine which has independent circuits and magnets. A pair of earphones should be used to experience the effect prominently since they deliver delayed speech and exclude the normal airborne undelayed sound which provides the normal monitoring signal. The volume of the delayed feedback must be sufficiently high to dominate the sound of the subject's voice which he hears through bone conduction. It must not be so high, however, as to be painful. The Presto PT-900 (Presto Recording Corporation, New York City) and the Concertone (Berlant Associates, Los Angeles) are two machines which will provide the effect. For those who wish to experiment with variable delays the length of tape between the recording and reproducing point may be changed by the addition of small rollers, or the speed of the machine may be varied discretely by means of the rapid forward and two normal speeds provided.

The switch is set in recording position and the subject speaks into the microphone while listening through earphones plugged into the reproducer jack. There is also a monitor jack for conventional purposes, but this does not provide the delay necessary to the phenomenon. The subject reads a moderately difficult text into the recording microphone with the playback gain control to the telephone headset turned off, and a normal reading pattern is established. The playback gain to the earphones is then advanced until the subject's speech is disturbed. Some partially deafened subjects require more gain, while other subjects are sensitive to the slightest amount of feedback. On the Presto PT-900, four delay values (or five, counting zero) are possible. Two tape speeds of 7.5 and 15 inches per second, each at both normal and rapid-for-

Bernard S. Lee (B.S., Missouri, 1933) is assistant Chief of the Photographic Branch of Signal Corps Engineering Laboratories, Fort Monmouth, New Jersey. A portion of this article is based on a paper presented at the 1950 Convention of ASHA, Columbus, Ohio. The assistance and many suggestions of Neil G. Smith, Speech Instructor of the Fort Monmouth Signal School, are acknowledged.

ward, provide delays of .04, .08, .14, and .28 seconds. The reaction is most commonly one of two types: (1) The subject slows down and raises his intensity, or, attempting to maintain normal speed, he (2) halts or repeats syllables and continuant sounds. While the artificial stutter is the more striking reaction, it is the less spectacular speed governing effect which probably will provide the more useful information.

The Aural Monitor

In addition to interferences with speech, aurally monitored manual tasks, such as rhythmic tapping and wireless code sending, are found to be badly disturbed by delayed feedback. A skilled tympanist, for example, performed erratically and with little or no rhythm under these terms; a telegraph operator sent dash-dot-dot instead of dash-dot for the letter 'n.' A study of the repetitive errors which are likely to occur when the subject attempts normal, rapid speech shows that the speech mechanism is somewhat like a machine gun, repeating aurally monitored units[1] as long as the trigger is held down. The word, *aluminum,* becomes *aluminum-num, lum-lum* becomes *lum-lum-lum;* counting backwards may become 10, 9, 9, 8, 7, and so forth. Phoneme repetition has not been observed.

The writer has portrayed in Figure 1 his impression of a speech mechanism model which is a nerve impulse diagram conceived to operate (and fail) as does normal (or pathological) speech. A succession of loops is shown in which speech progresses element by element to make up the phonemes —syllables—words — thoughts which go into a complete sentence. The satisfaction at each stage by a monitoring system is required; otherwise the machine halts, repeats, or repeats corrected. Repetition of sentences and words is volitional for emphasis, increased clarity, or correction of gross errors. Repetition of syllables is probably involuntary, or reflex, and it is at this stage that *artificial* stutter is manifested. Repetition of phonemes has not been artificially induced by delayed speech feedback in the observation of this writer.

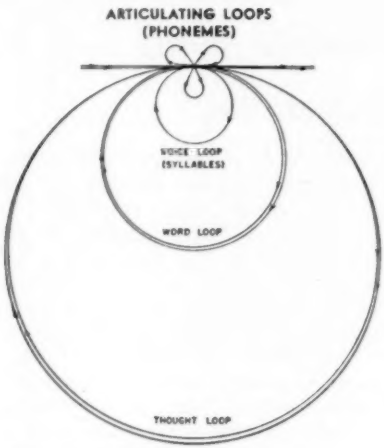

Figure 1. Speech model.

The importance of the aural monitor to speech fluency is evidenced by one of the two conditions noted by Bloodstein (*3*) in which stuttering was absent, namely, when reading in a group. Under this condition there is a conglomeration of similar speech sounds which are not in precise synchronism. A mechanism which depends on feedback for continuation or procedure into the next cycle may halt for either of two reasons: (1) The impulse or initiating phase may fail, or (2) the feedback may fail, and, thus lacking the necessary returning signal, the machine will also halt. Yet another result of feedback failure or delay might be repetition of the initiating impulse over and over until the

[1]The aurally monitored unit probably is the syllable.

mechanism is satisfied to proceed to the next cycle by the returned signal or feedback. In the group reading condition, there will be a plenitude of feedback furnished by the majority of readers who are successful, and if any fail, they are not likely to do so in unison. Thus each reader in a group is almost guaranteed to be provided with his missing feedback links to maintain the sequence of impulse-feedback, impulse-feedback, etc., which is required for fluent speech at a rate of 12-14 cycles[2] per second in rapid speech.

Applications

1. Delayed speech feedback provides valuable information to speech theory. The significance of the phoneme as the basic element of speech is more firmly established, and the common operation of motor and sensory speech is plainly shown.

2. Speech therapists who themselves are not stutterers may experience, at least to a superficial degree, the sensation of involuntary syllable repetition.

3. The use of this technique in order to detect deafness malingering was suggested to the writer by Dr. E. G. Witting of Signal Corps Engineering Laboratories.

4. Speech blocks induced by microphones and distant loud speakers cannot be attributed exclusively to microphone fright.

5. Telephone circuits that return an echo to the speaker may damage his speech as well as the listener's ability to hear.

6. The importance to room design has already been pointed out by Black (2).

[2]Production of a single phoneme is here treated as a unit cycle of the speech mechanism.

An Engineering Concept of the Cause of Stuttering

People are distinguished from animals by virtue of speech and civilized people from savages by virtue of a written language. Let us enumerate the phonetic memory symbols for each sound implicit to the graphic language of our civilization.

Visual reading language includes upper and lower case of both printed and script forms. A kinaesthetic memory is also stored for the writing of these letters. Add to this four more graphic memory patterns for the child who has changed writing hands from left to right. Thus, from 8 to 12 neural paths have been established in correspondence with every elemental speech producing neural process. Again, the age at which these neural paths are established in the course of learning to read and write may be of significance. A possible correlation of stuttering of the phoneme repeating type and the graphic language learning history might be revealed by a survey of the population. Questions pertinent to this suggestion are:

1. Do congenitally blind persons stutter?

2. Do intelligent illiterates stutter?

3. Do people without phonetic alphabets stutter?

In these questions, only phoneme repeating stutter is referred to.

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The Effect Of Delayed Side-Tone Upon Vocal Rate And Intensity

John W. Black

THE IMPORTANCE of the feedback monitoring system in speaking has not been fully determined. It is self-evident that it is indispensable in learning normal speech. Also it has been observed experimentally (a) that the level of amplification of the side-tone affects the intensity of voice (*5*), and (b) that the reverberation time and the size of the room in which a person talks affect his intensity and rate of utterance (*1*). Less objectively, speakers frequently report experiencing a momentary block at the outset of a speech that is carried by a public address system. The block occurs with an out-of-time echo of a sound, syllable, or word that comes back to the speaker as he is proceeding with a subsequent sound, syllable, or word. Likewise, studio engineers are familiar with the difficulties of talking while they are monitoring other material[1].

The consideration of the possibility that normal speech is related to or dependent upon a very limited range of delay in the reception of side-tone led to an experiment in which the effects of abnormally delayed side-tone upon the rate and intensity of speech were investigated. The greater interest was in the effects upon rate of reading; intensity was measured incidentally.

The hypotheses under test were: with minimum variation of intensity at the ear, the amount of time by which airborne side-tone is delayed (a) has no effect upon the rate of oral reading, and (b) has no effect upon vocal intensity (during the reading of short phrases).

PROCEDURE

A magnetic recorder-reproducer was constructed in which the recording head was on a track and could be moved at will from a position adjacent to the playback head to any distance up to 20 inches from it[2]. A

[1] By coincidence, Bernard S. Lee, Squier Signal Laboratory, Fort Monmouth, N. J., and the writer were investigating the effects of delayed side-tone independently in the spring and summer, 1950. Lee has described the experience of delayed side-tone very well and has offered some explanation about causal factors that may be operating (*3*, *4*).

[2] The Audio Signal Delaying Unit was developed by N. B. Marple IV and Scott N. Morrill in the spring and early summer, 1950. Many standard tape recorders can be operated to deliver delayed side-tone with-

John W. Black (Ph.D., Iowa, 1935) is Professor of Speech and Director of Speech Science at the Ohio State University. This article is adapted from a paper presented at the 1950 Convention of SAA, New York, N. Y. The materials were also presented informally in a discussion of a paper by Bernard S. Lee and Neil Smith at the 1950 Convention of ASHA, Columbus, Ohio. The study was conducted at the U. S. Naval School of Aviation Medicine, N.A.S., Pensacola, Fla., under a contract between the Office of Naval Research and the Ohio State University Research Foundation.

loop of tape passed these heads and an erase mechanism successively. The tape speed was 60 inches per second. The recording head was fed by an Altec condenser microphone and amplifiers, and the output of the system fed a pair of Permaflux PDR-3 earphones. The equipment accommodated continuously variable delays of side-tone from .02 to .35 second. The system also permitted the voice signal to by-pass the recording head and to be heard by the speaker-listener with no delay and at the same intensity that accompanied the delayed side-tone. This extended the relative range of delay from 0 to .35 second with the lower value determined by microphone position, the time characteristics of the system, and the distance from the earphone to the hearing mechanism.

Twenty-two enlisted personnel and officers of the Naval Aviation Technical Training Unit (photography) served as experimental subjects. Each subject read 11 series of short phrases, a series containing five 5-syllable phrases. These phrases had been timed for normal duration and intensity and grouped into lists that were equivalent in mean duration and intensity values under normal reading circumstances (*2, 6*). The subject faced the microphone, six inches removed, and a 10-second sweep-hand timer. He was instructed to speak naturally and to read a phrase when the timer hand pointed up, another when it pointed down, and to continue with this pattern through the 55 phrases.

A subject read a different list of phrases with each of 10 periods of delayed side-tone and with one condition of no-delay: .00, .03, .06, .09, .12, .15, .18, .21, .24, .27, and .30-second delay, respectively. The order of presentation of the 11 experimental conditions was rotated systematically among the subjects, each condition appearing first, second, . . . eleventh an equal number of times, namely two.

The output of the microphone besides feeding the delaying machine (or by-passing it in one instance) was bridged to a power level meter (Sound Apparatus Co., 50 db potentiometer, 50 mm./sec.). The longitudinal dimension of the tracings from the recorder were measured to determine the duration of each phrase; and the mean of three peak intensities of each phrase as indicated by the meter was taken to represent its intensity. The output of the microphone that fed the speaker's headset, either after being delayed (10 conditions) or not delayed (1 condition) passed through an automatic volume control (Langevin limiter). This minimized variations in the level of the feedback. In other words, a speaker always heard his side-tone at approximately the same level. The amount of delay itself was the principal experimental variable. The level at the reader's ear was 85-90 db, re .0002 dynes per square centimeter.

The data were treated by means of analysis of variance, one analysis being based upon the values of duration and another, of intensity.

Results and Discussion

The general effect of delaying the side-tone is a retarding of speech. The

out the feature of continuously variable delays. Lee used one of these units in his preliminary work at Fort Monmouth and at his suggestion a similar one was used at the Massachusetts Institute of Technology. Lee constructed a continuously variable unit about the same time the one that was used in this study was developed. Subsequently a comparable unit was developed at the University of Illinois and demonstrated at the annual meeting of the American Speech and Hearing Association, Columbus, Ohio, 1950.

subjective experience is variously described. With short delays, descriptions emphasize 'a stretching out feeling.' Longer delays may produce near traumatic effects that include the blocking of speech, facial contortions, the prolongation and slurring of sounds, and repetitions of sounds and syllables. Some of these effects are difficult for the subjects to describe, and the reports usually refer to surprise and frustration (*3, 4*).

Analyses of variance established significant differences in both the rate and intensity with which the five-syllable phrases were spoken in response to the experimental conditions. These analyses are summarized in Table 1. The mean values of intensity and duration that accompanied each experimental condition are enumerated in Table 2. The trends for the two sets of responses appeared to be similar when the experimental conditions were within the range 0-.18 second delay. Within this range the subjects spoke more slowly and apparently with greater intensity as the periods of delay were lengthened. With periods of delay beyond .18 second the mean duration of the reading became successively shorter while the intensities did not change (non-significant numerical increases).

Four values that relate to duration are noteworthy. First, even the smallest amount of measured delay of the side-tone, .03 second, produced a significantly reduced rate of reading. This side-tone would represent approximately 100% reflection of the level of the voice from a single wall 16.5 feet from the speaker.

Second, increments in the delay of the side-tone were accompanied by slower reading through the range 0-.18 second and with greater periods of delay the rate of reading became progressively faster. The fact that the longest reading times occurred with delays of .18 second suggests the possibility that the duration of the syllable may have an important bearing upon the effects of delayed side-tone. In normal reading, the mean duration of a syllable in the phrases is approximately .22 second. Although there is a disposition among readers to attempt to talk fast when they are reading with delayed side-tone it is doubtful that actual syllable duration (distinguished from the time spent in repetitions) is reduced. Probably it is prolonged and .18 second falls within the duration of a syllable. The syllable, however, may not exceed .18 second very much.

Third, the disproportionate increment in the duration of a phrase that

TABLE 1. Summary of analyses of variance of measurements of the duration and intensity in the reading of five-syllable phrases. Basic measures: duration, mean duration (sec.) of five phrases; intensity, means of 15 peak intensities per condition (three peaks per phrase). N, readers, 22.

Source of Variation	*D.F.*	*Variance*	
		Duration	*Intensity*
Side-tone delays	10	3704.72*	111.62*
Readers	21	8392.75	183.02
Remainder	210	289.02	10.92

*Significant (*F*) at the 1% level of confidence.

TABLE 2. Mean values of the duration and intensity with which five-syllable phrases were read in the presence of 11 time-conditions of side-tone.

Amount of Side-tone Delay (sec.)	*Means of Responses* *Duration* (sec.)*	*Intensity* (db)†
0	1.40	0
.03	1.59	2.4
.06	1.87	3.0
.09	2.05	5.2
.12	2.11	5.6
.15	2.18	5.7
.18	2.25*	5.6
.21	2.14	5.7
.24	2.12	6.4
.27	1.98	6.9
.30	1.90	6.4

*Any difference between two means of .26 significant (t) at the 1% level of confidence; 19, 5%.

†Db relative to the intensity of the lowest mean value. Any difference between two means of 2.55 significant (t) at the 1% level of confidence; 1.94, 5%.

occurs when the readers experience a delay of .06 second in their side-tone suggests that a delay that approaches the duration of a single phoneme may have especial significance in retarding the fluency of speech. This possibility has been pointed up by Lee who states that side-tone monitoring may involve acceptance or rejection of speech, phoneme by phoneme (*3, 4*).

Fourth, although the phrases that were read by the subjects were selected because the normal duration of the phrases had been measured and the several lists constructed to be comparable in both duration and intensity, the mean value for the duration of the phrases in the no-delay condition was about .30 second longer than normal. It will be remembered that the conditions were rotated among the subjects. In the two instances in which this particular condition was first the reading time was normal, about 1.1 seconds. The value that is shown in Table 2, therefore, indicates that the effects of the delayed side-tone carried over and affected the fluency of the readers when no delay was operating. This result is in line with observations that the frustrations that occur with reading under a condition of delayed side-tone are not overcome immediately. Follow-up studies of this fact may help the speech therapist to understand the carry-over effects of failures in talking.

Delayed side-tone affected vocal intensity. Within the range of delays that was investigated the readers became numerically more intense as the delay was increased to .27 second. There was no significant increment in intensity, however, beyond the level produced by .09-second delay. In this regard, it should be noted especially that variation in the level of the side-tone was minimized.

Summary

The importance of side-tone in the understanding of the act of speech is only recently being investigated systematically. The foregoing results show that delayed side-tone affects vocal rate and intensity during reading. Rate of oral reading is progressively retarded as the increments of delay are increased through the range 0-.18 second. The effect of increasing the delay from .03 to .06 second is disproportionately greater than the effect of any other comparable .03-second increment within the range of the study. The decreased rate that accompanies a delayed side-tone continues during reading that is done immediately after an experience with delayed side-tone.

Numerically, intensity of reading increased progressively as delay of the side-tone was introduced and extended from 0 to .27 second. The changes beyond the ones produced by delay .09 second were not statistically significant.

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Some Sources Of Literature On Speech Disorders

Robert N. Broadus

THE OLD STATEMENT that speech is the great borrower applies to pathology and correction as well as to other parts of the area. Among the disciplines interested in this problem are: medicine, psychiatry, education, psychology, physiology, and others, in addition to the academic section designated as 'speech.' Because of this multiplicity of approaches, and because of the comparative recency of serious research on the problem, bibliographical controls for the study are not yet secure.

As the investigation of speech disorders emerges from these related areas to become a complete and important study in its own right, with more and more original research, guides to the literature of the area become increasingly necessary in order that scholars may take better advantage of the previous work done in these related fields of investigation.

The following list is a preliminary suggestion of some of the more important sources which the researcher may find useful.

General Bibliographies

The following works include bibliographies of speech disorders. No one of them is a complete guide, but, taken together, they lead to a large part of the better items bearing on the subject.

British Museum. *Subject Index of the Modern Works Added to the Library.* [1881-] London, 1902-

Partial subject guide to one of world's great libraries. 13 vols. published so far. Under subject 'Voice' are headings for 'Aphasia,' 'Stammering,' etc.

Ogilvie, Mardel. *Terminology and Definition of Speech Defects.* New York: Bureau of Publications, Teachers Coll., Columbia Univ., 1942. (*Its*, Contrib. to Educ., no. 859) Bibliography, p. 247-290. A rather lengthy list in several languages.

Psychological Index; A Bibliography of the Literature of Psychology and Cognate Subjects. (various editors) 42 vols., 1894-1935.

Annual list of books and articles on psychology in many languages. Subject arrangement includes speech disorders at various places in outline. Partially indexed by: Ansbacher, H. L., ed. *Psychological Index Abstracts References.* (2 pts.) Amer. Psychol. Ass., 1940-1941. Continued by *Psychological Abstracts.*

Thonssen, Lester and Fatherson, Elizabeth. *Bibliography of Speech Education.* New York: Wilson, 1939. Speech pathology and correction, p. 579-668.

Thonssen, Lester, Robb, Mary Margaret and Thonssen, Dorothea. *Bibliography of Speech Education, Supplement: 1939-1948.* New York: Wilson, 1950. Speech pathology and correction, p. 259-304.

Probably the world's finest guide to the study of speech. Limited to publications in English language but gives thorough coverage of these.

Robert N. Broadus (B.L.S., Chicago, 1947) is Chief Librarian and Instructor in Speech, George Pepperdine College, Los Angeles.

U. S. Library of Congress. *Subject Catalog.* Washington, 1950-

A new quarterly reprinting of the catalog cards of the Library of Congress, arranged by subject headings. To be cumulated annually and probably for a five-year period. Includes books added to L. C.; therefore many in foreign languages. One heading is 'Speech, disorders of.'

U. S. Surgeon-general's office. *Index Catalogue of the Library.* Washington: U. S. Govt. Print. Off. Series I, 16 vols., 1880-1895; Series II, 21 vols., 1896-1916; Series III, 10 vols., 1918-1932; Series IV, 1936-date.

This tool, one of America's greatest contributions to medicine, is a magnificent work. Entries under 'stammering' and other topics include books and periodical articles in many languages. Regrettably for researchers in speech, the fourth series probably will be discontinued before the latter part of the alphabet (including 'S') is reached. This is especially unfortunate since Series III, vols. 6-10 (entries G-Z) includes periodical articles only through 1925.

Current bibliographical compilations are indexed in: *Bibliographic Index, A Cumulative Bibliography of Bibliographies.* New York: Wilson, 1938-date.

National and Trade Bibliographies

The following bibliographies are important for tracing and identifying and, in some cases, for keeping up with current books in the field.

A. United States

American Catalogue of Books, 1876-1910. (9 vols. in 13.) New York: Publishers Weekly, 1876-1910.

Standard American list for these years. Subject index includes entries under 'Stammering,' 'Voice,' etc.

United States Catalog. (2nd ed.; books in print, 1902.) Minneapolis: Wilson, 1903. (with supplements)

——. (3rd ed.; books in print, Jan. 1, 1912.) New York: Wilson, 1912. (with supplements)

——. (4th ed.; books in print, Jan. 1, 1928.) New York: Wilson, 1928.

Cumulative Book Index, A World List of Books in the English Language. New York: Wilson, 1928-date.

This set furnishes a guide (including subject approach) to books published in the U. S., and to many in English published in other countries.

B. England

English Catalogue of Books Published 1801-1930. (13 vols.) London: S. Low, 1864-1905; publishers circular, 1912-1931.

Useful for historical approach to problem, since even early volumes have references to 'Stuttering,' etc.

Whitaker's Cumulative Book List; A Classified List of Publications Together with an Index to Authors and Titles. London: Whitaker, 1924-date.

Materials on speech disorders somewhat hard to locate, but should be used for period covered.

C. France

Catalogue Général de la Librairie Française, 1840- Paris: Lorenz, Champion (etc.), 1867-

Valuable for historical approach.

Librairie Française, Catalogue Général des Ouvrages en Vente au 1er Janvier, 1930. Paris: Cercle de la Librairie, 1930-

References to subjects in volumes labeled: 'Repertoire par titles.'

Biblio, Catalogue des Ouvrages Parus in Langue Française dans le Monde Entier. Paris: Service Bibliographique de la Librairie Hachette, 1933-

Monthly; includes subject index. Useful for keeping up-to-date on French books.

D. Germany

Kayser, Christian Gottlob. *Vollständiges Bücher-Lexikon, 1750-1910.* (36 vols.) Leipzig, 1834-1910.

Some references on 'Stottern' and other subjects in field.

Deutsches Bücherverzeichnis der Jahre 1911-1930. Leipzig: Börsenverein der Deutschen Buchhändler, 1915-1933.

Volumes of 'Stich- und Schlagwortregister,' appearing for 1911-1914, 1915-1920, 1921-1925, and 1926-1930, have entries under 'Stottern,' etc.

Halbjahrsverzeichnis der Neuerscheinungen des Deutschen Buchhandels mit Voranzeigen, Verlags- und Preisanderungen, Stich- und Schlagwortregister, 1798- Leipzig: Hinrichs (etc.), 1798- Title varies.

Later volumes have references of interest to speech students.

Abstracts

More and more, it is being recognized that abstracts are of supreme importance to the scholar who is trying to keep up with any field. In the social sciences, as well as physics, greater attention is being given this type of service.

Abstracts. *Journal of Speech and Hearing Disorder.* This feature has been included since 1943. Since 1948, a committee reviews 152 other journals for articles relating to speech and hearing. The articles are listed and annotated.

Child Development Abstracts and Bibliography. Washington: National Research Council, 1927- (Processed)
Annual subject index leads to items on speech disorders.

Current medical literature. *Journal of the American Medical Association.*
Arranged by name of periodical in which original article appears. Includes a few articles on speech pathology.

Excerpta Medica; A Monthly Abstracting Service of Articles from Every Available Medical Journal in the World. Amsterdam, 1891- Section XI, Oto-, rhino-, laryngology.
Many American publications are included. Some references on stuttering, etc.

In the periodicals. *Quarterly Journal of Speech.*
Since 1939, this feature has included a heading 'Speech pathology and psychology,' or the equivalent. Articles in other journals are listed and annotated.

Psychological Abstracts. Lancaster, Pa.: Amer. Psychol. Ass., 1927-
Speech disorders are given under topic 'Behavior deviations' in subject scheme. Annual index, no. 13, published in December.

Speech Monographs. Speech Ass. of Amer., 1934-
Now quarterly. Abstracts, usually of masters' and doctoral theses, given in vol. 13 (1946) and subsequent numbers.

Periodical Guides

Among the many lists of periodical articles, the following offer considerable help to the researcher on speech difficulties:

Quarterly Cumulative Index Medicus. Chicago: Amer. Med. Ass., 1927-
This index is the successor to two earlier medical guides:

Index Medicus; A Quarterly Classified Record of Current Medical Literature of the World, 1879-1926. Washington: Carnegie Institution, 1879-1927. Series I, 21 vols., Series II, 18 vols., Series III, 12 vols.

Quarterly Cumulative Index to Current Medical Literature, 1916-1926. Chicago: Amer. Med. Ass., 1917-1927. 12 vols.

Includes book and periodical literature in many languages giving most thorough coverage of the medical field to be found in any part of the world. Over 1000 periodicals now indexed.

Current List of Medical Literature. Washington: Med. Lib. Ass., and Friends of the Army Med. Lib., 1941-
A monthly list (weekly through June, 1950), under various subject heads, of articles in some 1800 current medical periodicals, helping to keep the *Quarterly Cumulative Index Medicus* up-to-date. To locate materials on speech, it is best to consult the index.

Note: The Army Medical library lends single microfilm copies free. It sells microfilm at 50¢ for 50 pages (single article) and photoprints at 50¢ for 5 pages (single article).

Of the general periodical indexes, four are of some significance in this area. Though some of the others have a reference here and there, such entries are too infrequent to justify a researcher taking the time to look through them. The four useful ones are:

Poole, William F. *Poole's Index to Periodical Literature.* New York: Peter Smith, 1938. 6 vols. in 7.
Covers periodicals from 1802-1906. Though indicated materials on speech disorders are very old and somewhat scattered, the tool is valuable in that it may lead to historical and documentary materials not found in other guides.

Education Index; A Cumulative Author and Subject Index to a Selected List of Educational Periodicals, Books, and Pamphlets. New York: Wilson, 1929-[1]

International Index to Periodicals Devoted Chiefly to the Humanities and Science. New York: Wilson, 1907-[1]

Early volumes are good guide to foreign publications. In recent years has tended to drop these in favor of English.

Readers' Guide to Periodical Literature. New York: Wilson, 1900-[1]

Theses and Dissertations

The most useful lists of thesis material for this field are:

U. S. Library of Congress. *List of American Doctoral Dissertations Printed in . . .* Washington: Govt. Print. Off., 1913-1938.

Arrangement is by author, but has subject index for each annual volume. Tells where material is published.

Doctoral Dissertations Accepted by American Universities. New York: Wilson, 1933/34-date.

Also an annual list. Speech included under humanities. Has alphabetical subject index.

Knower, Franklin. Graduate theses; an index to graduate work in the field of speech. *Speech Monogr.*, 1934-date.

Masters' and doctoral theses for each year, arranged by school with index by subject area. 1935 vol. includes most of works completed in previous years.

Conclusion

These are some of the sources for materials in the study of speech pathology and correction. The list is by no means exhaustive, but merely suggestive, and there is need for further study in this auxiliary area. Other disciplines, such as physics and social sciences, are carefully studying their publication and indexing needs. The field of speech might profit too, perhaps, from surveys of its needs in publishing and bibliographic organization.

[1]Dates given for start of indexing, not for publication of first cumulation.

Book Reviews

MYKLEBUST, HELMER R. *Your Deaf Child.* (Publication No. 94, American Lecture Series) Springfield, Illinois: Charles C. Thomas, 1950. Pp. 132.

The sub-title, 'A Guide for Parents,' states the purpose of this book. As the author points out in Chapter Seven, the big challenge is to be the deaf child's parents, a job more difficult than being his teachers. This book is directed to help parents meet that challenge. It touches on many subjects lightly, rather than being a detailed treatment of any one aspect of deafness.

Chapter One introduces the problem of deafness, and defines such terms as deafness and audiology. The function of the ear is briefly explained. Causes of deafness and ways of telling when a child is deaf are also discussed.

Chapter Two discusses in more detail the causes and types of deafness. A page is devoted to one of the author's special interests, the child deafened by meningitis. The child with multiple handicaps is briefly treated. Some of the implications of the age at which the child loses his hearing are presented.

The attitudes of the parent of the deaf child are taken up in Chapter Three. The author talks of four possible attitudes toward the child. The attitude of love and acceptance is the desirable one. The less desirable attitudes are those of overprotection, wishful thinking, and indifference. Healthy attitudes toward the deaf child are not easy to develop, but they must be developed if the child is to grow properly. Some ways of achieving these more desirable attitudes are suggested.

Chapter Four deals with some of the needs of the deaf child. Essentially, his needs do not differ from those of other children, but they must be met in a different, often more direct fashion. It is most important for the parents to be consistent in such things as daily routine, displaying affection, talking to the child, and discipline. The deaf child must be a part of the family. He needs to find activities in which his deafness is not a handicap so he may experience some success. In addition, he needs some responsibilities, and some feelings of independence. Parents frequently are distressed by the apparent over-activity of their deaf child. The author points out that some of this is a substitute for the child expressing himself in speech. Parents should help the child to find satisfactory means of self-expression.

In Chapter Five, the child's social and motor skills are discussed. As Professor Myklebust states, all children vary widely in the age at which they acquire such traits as good toilet and eating habits. The deaf child, however, may be slightly retarded because he misses some of the experiences of other children. Training for the deaf child must be concrete, simple, and consistent. It must not begin too early for the individual child. Discipline should not be just punishment, but a positive part of the total training of the child. Other aspects of the deaf child's behavior such as jealously, fears, temper tantrums, nail-biting, and noisy breathing are also considered. The chapter ends with a consideration of the problem of the attitudes of the neighborhood toward the deaf child.

The communication problems of the deaf child are the subject of Chapter Six. The parents can help greatly in starting the child on speech and speech reading by talking to him directly and naturally from the time of birth. Tests of hearing are briefly considered. The value of residual hearing, and the role of the hearing aid and auditory training are presented. The special problems of the child who loses his hearing after he has acquired speech are considered. Special educational facilities for the deaf child are outlined.

Chapter Seven suggests some of the things the parent can expect from the deaf child in the manner of school progress, earning a living, and personality development. Again,

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Book Reviews is edited by Ernest H. Henrikson, University of Minnesota. With this issue of the *Journal*, Dr. Henrikson is retiring as Assistant Editor, and will be replaced by Kenneth Scott Wood, University of Oregon.

the development of reasonable goals by both parent and child are stressed.

The last quarter of the book presents sources of information to the parent. There is a section on organizations which can help the parent, a list of helpful books and periodicals, and a directory of schools for the deaf and hard of hearing in the United States and Canada. The directory is taken from the *American Annals of the Deaf* for January, 1949.

As a guidebook for parents, this little book should be very useful. It is simply and clearly written. It answers many of the questions the parents of the deaf child might ask. The information presented is accurate. While other writers might differ in the arrangement or the amount of space devoted to a given topic, the author has made good use of his space. This is not a book for the specialist, but it has a place in the libraries of schools, clinics, and other organizations dealing with the hard of hearing and deaf. Professor Myklebust should be congratulated on writing a book on some of the problems of hearing which is understandable and interesting to the layman.

JOHN WILEY.
University of Nebraska

VAN RIPER, C. *Teaching Your Child to Talk*. New York: Harper & Brothers, 1950. Pp. 141.

For better or for worse, parents play a most important part in the development of children's speech. If the part they play is grounded in ignorance, as it often is, the parents will be less likely to promote the best speech development in their youngsters and may even contribute to the development of defective speech. Thus it seems highly desirable that parents have sound information about speech and its development so that their impact on children in this area may be dynamic and positive.

Teaching Your Child to Talk supplies such information. The book presents a discussion of the general developmental pattern of the child's speech from pre-speech activities through to 'grown up' speech. The discussion combines a presentation of what happens, with constant relating of these events to the part the home is playing, with practical suggestions as to how parents may help to promote good speech. It includes many interesting and pertinent specific illustrations which clarify and emphasize the point being made.

This book represents another outstanding contribution by Charles Van Riper to the literature relating to speech improvement. The contents are sound and are based on careful and extended research and clinical experience. The organization is informal but clear. The writing is charming; the reader is informed not only without pain but with real pleasure. If this book is widely read and enjoyed and then studied and applied, as this reviewer believes it should be, the positive influence on the speech of the youngsters with whom the readers come in contact should be tremendous.

ERNEST H. HENRIKSON.
University of Minnesota

ARNOLD, GENEVIEVE. *A Practice Manual for the Correction of Speech Sounds*. Distributed by the author, Speech Department, University of Houston, Houston, Texas, 1950. Pp. 86.

This collection of drill words and sentences has been, according to the author, 'purposely constructed around simple words and sentences so that the student's attention can be given to the accurate production of the correct sound rather than to special reading ability.'

A short explanation of the various sections of the book and of methods for using the drill materials is followed by an articulation word test, lists of words and sentences containing the consonant sounds and blends, and examples of conversation games that can be used to help a child learn to use the sounds.

The explanatory material is too brief to be of great help to the classroom teacher, but the drill material is useful for the speech correctionist. The sound associations for the consonants, comparing the sound of [v] to that of an electric razor and the sound of [r] to that of the busy signal on a telephone, for example, provide helpful suggestions.

This booklet has put into available form some of the drill materials that most clinicians must work out for themselves. Although the therapist cannot depend entirely on such drill lists, he will find this manual another of the time-savers that come to him in 'convenient, ready-to-take tablet form.'

CHARLOTTE G. WELLS.
University of Missouri

FISCHER, SIEGFRIED. *Principles of General Psychopathology*. New York: Philosophical Library, 1950. Pp. 327.

This is a book which attempts to describe and outline the field of general psychopathology in relation to the corresponding known areas of general psychology. It is essentially eclectic; the attitude toward the psychoanalytic concepts, for instance, is mature and critical.

The first section, comprising almost two-thirds of the book, deals with 'fundamentals of psychopathological concepts.' In this section there are 12 chapters, each dealing with a large psychological area and the corresponding psychopathological aspects of that area. The chapters deal with: perception, thought, memory, attention, consciousness and unconsciousness, apperception, emotion, drive, intelligence, phantasy, movements of expression, and language. The chapter headings usually include the phrase '. . . and its disturbances.' There are advantages and disadvantages to this approach. There is a very real effort on the part of the author to link up psychological concepts with psychopathological concepts. If, at times, he is less than successful this may be due to the paucity of concepts in psychology; or, it may be due to various historical accidents as to which concepts have received the greatest degree of study in psychology. The areas selected by the author are the traditional areas; it is unfortunate that some of the areas of most intense present-day research, such as experimental neurosis in animals or the factor analysis approach to personality, are not mentioned. The principal disadvantage to this approach, which the author recognizes and makes up for in later sections, is that the disturbances or disorders appear to be related to a part of the person or to a single process, rather than fundamental disturbances of the total orientation and total behavior-tendencies of the whole person.

The second part of the book deals with dynamic psychology and dynamic psychopathology. There is an excellent presentation of the point of view that some behavior is comprehensible (which we label as 'normal') and some behavior to us is incomprehensible (which we label 'abnormal'). In the case of incomprehensible behavior, we are unable to fill in the preceding sequence of causal events. The author presents, in italics, the most important concept in this section:

> In contrast to causal connections, psychological understanding sees the purposive context which is oriented by the totality of objective tasks. *The concept of purposive context is, therefore, the basic category of all dynamic psychology.*

This section constitutes an eclectic approach to the general area of dynamic psychopathology, taking up repression, conflict, inferiority, insecurity, hysteria, and the other principal concepts of psychopathology. The author does not attempt to devise a particular 'system' but draws freely from Freud, Horney, Kretschmer, Adler, and others. Inasmuch as the book is a theoretical discussion of concepts, the author does not bring in cultural-anthropological data of the sort that has become so widespread in some areas of psychiatry.

In Part Three, consisting of a brief 10 pages, the author deals with syndromes (or 'symptom-complexes'), recognizing full well the danger and inaccuracy of referring to these as 'diseases.'

In the final section, the unifying concept of personality is considered, together with the related concepts of character and temperament. The broad patterns leading to schizophrenia on the one hand and manic-depressive psychosis on the other hand are delineated. Finally, the author differentiates between the neurotic and the psychopathic personality, stating that the former is acquired, while the latter is innate.

In general, we might say that this book represents a conservative approach to general psychopathology, neither veering toward the classical psychoanalytic position on the one hand, nor toward the neo-Freudian position on the other hand. It is written, not for popular consumption, but as a serious, scholarly introduction to psychopathology.

CURTIS E. TUTHILL.
George Washington University

Abstracts

The November, 1950 issue of the *Journal of the Acoustical Society of America* (Vol. 22, No. 6, pp. 689-804), carries the Proceedings of the Speech Communications Conference at Massachusetts Institute of Technology May 31-June 3, 1950. Many problems of interest to members of the ASHA are considered in the 24 papers which comprise the report. Single copies of this issue may be obtained for $2.00 from the American Institute of Physics, Prince and Lemon Streets, Lancaster, Penna.—*E. T. M.*

FLETCHER, H. A method of calculating hearing loss for speech from an audiogram. *J. acoust. Soc. Amer.*, 22, 1950, 1-5.

A mathematical development of a formula for obtaining hearing loss for speech from audiometric measurements is shown, based upon studies of loudness and upon contributions to speech audibility by frequency bands. The proposed method employs the average of the two frequencies showing the smallest loss of the three frequencies 500, 1000, and 2000 cycles. The calculated loss for speech by this method was closer to the obtained loss (measured variously by speech through air, average of loss of subjects in *Hearing Aids* on spondee, sentence and PB lists, and a special spondee recording) than was the conventional method of averaging loss at 500, 1000, and 2000 cycles. This was especially true when the audiogram was not flat (500 cycle loss 20 db or more different from 2000 cycle loss). In cases of rapidly descending audiograms a correction factor should be applied. (*L.G.D.*)

MUNSON, W. A. AND WIENER, F. M. Sound measurements for psychophysical tests. *J. acoust. Soc. Amer.*, 22, 1950, 382-386.

The greater variability in results obtained in psychophysical tests of audition compared with results obtained in physical measurements has usually been attributed to inherent lack of reliability in subjects but may instead be due to the method of measurement employed. Two sets of measurements are reported on two individuals, employing the Bell Telephone Laboratories 'ABX' equipment, which automatically presents a sequence of choices to the subject: (1) comparison of relative receiver voltage in db with sound pressure level in db as measured by ear canal probe tubes, and (2) comparison of sound pressure in a free field with sound pressure in the ear canal. The general conclusion is that the variance (standard deviation squared) is about 1.5 $(db)^2$, this figure being attributed to individual variation. A choice must be made of the appropriate method of measurement, auditory canal sound pressure measurements not always being the method of choice. (*L.G.D.*)

DICKSON, E. D. AND CHADWICH, D. L. Speech audiometry in the assessment of deafness. *J. Laryng.*, 64, 1950, 464-481.

Procedures employed in developing a standardized test of the ability to hear and understand speech are described. Experiments with monitored live voice and recorded speech revealed that the latter produced the most consistent results. Using this technique, normal speech audiograms were obtained by testing 100 people who had normal pure-tone audiograms. Speech audiograms for more than 90 deaf patients were plotted and typical responses for various types of deafness are illustrated. Data on 35 fenestrated otosclerotics are presented. The authors conclude that pure tone audiometry consistently overestimates the use-

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Abstracts is edited by Eugene T. McDonald, Pennsylvania State College, assisted by the following committee: Jack L. Bangs, University of Washington; Leo G. Doerfler, University of Pittsburgh; Charles R. Elliott, Northwestern University; Sylvia J. Onesti, Children's Medical Center, Boston, Mass.; Charlotte G. Wells, University of Missouri; Harry S. Wise, U. S. Marine Hospital, Boston, Mass.; and Kenneth Scott Wood, University of Oregon. The committee systematically reviews 152 journals for articles of interest to members of ASHA. Students and other members are encouraged to submit abstracts. Directions for preparing abstracts may be obtained from the abstracts editor.

ful gain for speech following fenestration, whereas speech audiometry gives a more practical assessment of the improvement in speech understanding. (*S.J.O.*)

Poulos, T. H. Acuity and perceptive accuracy of monaural and binaural hearing. *Volta Rev.*, 52, 1950, 314-316, 326-328.

This thesis abstract reports results obtained with over 200 children (apparently a majority with normal hearing) on two tests: (1) comparison of monaural with binaural threshold audiometric measurements, and (2) comparison of monaural with binaural 'perceptive accuracy' through use of a recorded multiple choice crude discrimination test. Calibration of the audiometer earphones was performed by feeding the 'output of each . . . directly into a microphone connected to an amplifier.' No mention is made of any coupler, type of microphone, etc. Results are not treated statistically, but given only in per cent. Conclusions are that binaural is more accurate than monaural (better ear) hearing in terms of speech perception, binaural acuity is as good as the 'composite ear (left and right)' and better than monaural hearing, and the AMA formula approximates the true binaural per cent loss (details not given). (*L.G.D.*)

Curry, E. Analysis of hearing loss patterns in a rural Illinois school system. *Amer. J. Dis. Child.*, 80, 1950, 254-259.

All children in grades 5, 7 and 9 in De Witt and Piatt counties, Illinois, totalling 6062, were tested with a pure frequency sweep of 15 db at seven frequencies (256-11,584). Each child who failed this test was then given a pure frequency audiometric test. Analysis of data showed that: (1) For boys, losses are more likely to occur at 256, 4096, and 8192 cps, while for girls, losses are more likely to occur at 256 cps and least likely at 2048 cps. (2) The number of instances of monaural loss exceeded with high statistical significance the number of binaural losses for boys at 1024 cps.; for girls, at 512 and 1024 cps; and for the combined group at 512, 1024, and 8192 cps. (3) The boys and girls of this population have more deficient responses in the right ear than in the left. (4) Boys had more deficient responses than girls. (5) The number of right monaural hearing losses exceeded the number of left monaural hearing losses in each group and in the combined groups. (*S.J.O.*)

Worchel, P. and Dallenbach, K. M. Vestibular sensitivity in the deaf. *Amer. J. Psychol.*, 63, 1950, 161-175.

Results from administration of standing and rotation tests to 59 subjects with varying degrees of hearing loss are presented. The rotation test involves the semi-circular canals and the standing test involves the macular organs of the utricle and saccule. Discrepancies among results of various investigators are laid to errors in sampling and to the fallacy of basing conclusions upon gross classifications of the subject's experiences and behavior. (*C.R.E.*)

Kopetzky, S. J. A study of the deafness heritage in otoscleroses. *Arch. Otolaryng., Chicago*, 52, 1950, 397-418.

Criteria for establishing a diagnosis of asymptomatic otosclerosis in the living patient are presented. Genealogic charts with blood chemistry findings suggest that deficiency in carbohydrate metabolism is what is actually transmitted as the heritage of deafness. Blood biochemistry offers a rational explanation for the different developmental phases of otosclerosis. (*S.J.O.*)

Sataloff, J. The Rh factor in congenital deafness. *Volta Rev.*, 52, 1950, 311, 332.

A brief discussion is presented of the Rh factor and how it may be related to congenital hearing loss. Rh incompatibility results in a small percentage of hearing loss, apparently of a perceptive non-progressive nature. (*L.G.D.*)

Crabtree, N. and Gerrard, J. Perceptive deafness associated with severe neonatal jaundice. *J. Laryng.*, 64, 1950, 482-506.

Hearing tests were made of 22 cases of kernicterus due to Rh iso-immunization over the age of three years. Eighty per cent of the cases studied showed impaired hearing of a perceptive type. Three other cases had a conductive deafness. Only one case appeared to have a normal range of hearing. The degree of deafness bears no constant relation to the extent of the extrapyramidal lesion and it is possible that deafness may be the only sequel of a neonatal icterus.

This type of deafness differs pathologically from that associated with maternal rubella during the first trimester of pregnancy.

All cases of kernicterus should be examined by pure-tone audiometry, since abnormalities of function are frequently so severe that impaired auditory acuity is unsuspected. Any assessment of intelligence in cases of kernicterus should be made in the light of otological findings, and the type of intelligence tests used selected accordingly. (*S.J.O.*)

MARX, M. AND JURKO, M. The relationship between audiogenic seizure and middle ear disease. *J. genet. Psychol.*, 76, 1950, 221-239.

Eighty-two albino rats which were susceptible to audiogenic seizure were exposed to a 12,300 cycle signal. Autopsies were performed to determine the correlation between seizure sensitivity and middle ear disease. The existence of a correlation between sensitivity to audiogenic seizure and middle ear infection was confirmed and a tendency was noted for this relationship to be greater in the milder secretory type of infection than in the suppurative type. The relationship between middle ear infection and the convulsive behavior pattern is discussed. Two hypotheses of the role of middle ear disease in the seizure pattern were considered. (*J.L.B.*)

OLERON, P. A study of the intelligence of the deaf. *Amer. Ann. Deaf*, 95, 1950, 179-195.

Two-hundred forty-six deaf students (9-21 years) of the Institution Nationale des Sourd-Muets de Paris were tested by means of the 1938 edition of Raven's Progressive Matrices. Results indicate the deaf to be inferior to the hearing, with the lag becoming somewhat greater with increasing age. This inferiority is ascribed to inability in the realm of abstract thought and not to other areas of mental ability. Onset of deafness after age six diminishes the inferiority. Study of 50 children showed no significant difference in terms of residual hearing determined by audiometric measurement. (*L.G.D.*)

BERANEK, L. L. How well does an earphone work. *Hearing Aid*, 3 (3), 1950, 25-27.

This reprint from the July, 1950 issue of *Standardization* describes briefly the technique of reciprocity calibration of condenser microphones, and also the coupler calibration of against-the-ear, hearing aid, and insert type earphones. The information is a summary of American Standard Method Z244-1949 and Z249-1949 for Pressure Calibration of Laboratory Standard Pressure Microphones and Coupler Calibration of Earphones, respectively. (*L.G.D.*)

RYCROFT, D. Hearing aids and 'deaf education.' *J. Logopaedics*, 1 (1), 1948, 36-40.

This article deals with the role the hearing aid has played in altering the status of the deafened in modern society. (*H.S.W.*)

CHANDLER, C. Emily's story. *Calif. J. elem. Educ.*, 28, 1950, 180-185.

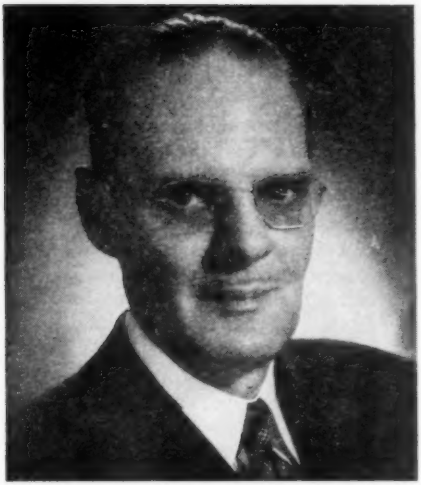
This case history of a child with a hearing loss relates the procedures in determining and dealing with the individual problems that Emily presented. The individual attention given to the child resulted in better school work and better adjustment to the school situation. (*C.G.W.*)

HERRICK, H. An auditory training program for nursery schools. *Volta Rev.*, 52, 1950, 448-451, 482-484, 497-499, 528-530.

This two-part series describes in moderate detail the aims of auditory training for the three-year-old deaf and hard of hearing child. Beginning with tactile sense training, work progresses to finer discriminations through use of the group aid. Emphasis is laid upon the proper introduction of the group aid on a day-by-day basis. Speech discrimination is considered briefly. (*L.G.D.*)

TANTAU, L. B. Tulare County's auditory training program. *Amer. Sch. Bd J.*, 121 (2), 1950, 27-28.

Tulare County, California, has established a special program designed to rehabilitate the aurally handicapped child, to train him to use a hearing aid and interpret the sounds he hears, and to teach him to adjust to the classroom situation. According to the author, 'It is easy enough to discover hard-of-hearing cases, but what to do about them is another matter.' Tulare County has attempted to make provision for the hard of hearing children in its schools and to enable them to return to their own classrooms after auditory training in a special room. (*C.G.W.*)



The American Speech and Hearing Association

presents THE HONORS OF THE ASSOCIATION

to CLARENCE T. SIMON

The Council of the American Speech and Hearing Association votes unanimously that: *the Honors of the Association for distinguished contribution to the field of speech and hearing be awarded to Dr. Clarence T. Simon, a statement of this award to be published in the March, 1951 issue of the* Journal of Speech and Hearing Disorders, *together with a portrait of Dr. Simon and a summary of the achievements for which the award is granted.*

—The American Speech and Hearing Association, in convention at Columbus, Ohio, November 11, 1950.

I. Biographical Summary

Simon, Clarence T., speech pathologist, psychologist; b. Newton, Iowa, May 13, 1897; m. Dorothy Will, 1936; ch. Lee Will, John Turkle.

B.A., Wittenberg Coll., 1919; M.A., Northwestern Univ., 1922; Ph.D., Univ. of Iowa, 1925.

Instructor, Sch. of Speech, Northwestern Univ., 1920-1923; Assoc. Prof. Psych. of Sp., 1924-1925; Prof. Psych. of Sp., 1925-1928; Dir. Sp. Clin., Prof. Sp. Cor., 1928-1947; Visit. Prof. Sp., Univ. of Hawaii, 1947-1949; Prof. Psych. of Sp., Northwestern Univ., since 1949.

Fellow, Amer. Sp. and Hearing Assoc. (Vice-Pres., 1938-1940; Pres., 1946); Member, Sp. Assoc. Amer. (Pres., 1930; Ed., *Sp. Monogr.*, 1932-1941); Cent. States Sp. Assoc.; Amer. Psych. Assoc.; A.A.A.S.; Sigma Xi; Ill. Assoc. of Appl. Psych.; Pi Kappa Delta.

Contributor of articles to professional journals.

II. Contribution To Speech and Hearing

In the field of speech pathology it is for most purposes more appropriate to remark that it is earlier than we realize than to repeat the common saying that it is later than we think. For this is a professional area in which many of the most important pioneers are with us, active and creative in such measure that we do not easily identify them as pioneers.

One of these, one who is regarded with special admiration and affection, is Clarence Simon.

Professor Simon was a graduate student at Northwestern University and at Iowa at the time when speech pathology was just beginning to take shape as a new field of research and service. His graduate training was influenced by this fact. Accordingly, and by virtue of his personal qualities, he was prepared to meet with extraordinary effectiveness the opportunity by which he was confronted at Northwestern University in the late twenties and the years that followed to build a great clinical and laboratory center and a professional training program in speech rehabilitation.

The distinguished program in this field at Northwestern University will be forever a monument to Professor Clarence Simon, an accomplishment measuring the stature of a leader of unusual distinction.

Among Professor Simon's publications are reports of research dealing with such problems as variability of consecutive wave lengths in vocal and instrumental sounds, chest resonance, dental factors related to speech, stuttering, aphasia, and speech problems in cerebral palsy. Through his writings, as well as through other aspects of his professional work, he has also exercised leadership in general speech education. He is a public speaker of exceptional effectiveness and distinguished reputation.

It is of special significance that one may say of Clarence Simon that seldom has any man, noted for leadership, enjoyed so abundantly the warm affection of his students and peers. In his human qualities he is impressively great.

WENDELL JOHNSON
Retiring President

Resolved: That the Association express the most sincere appreciation and its admiration for the warm, friendly, and very earnest and intelligent services performed by its retiring President, Professor Wendell Johnson. When clinical speech pathology, research, and public relations are recalled, Professor Johnson will be the abiding symbol of our Association and what it really stands for. He has guided it through a critical year of its activities in a way that reflects highest competency and sincere devotion.

—The American Speech and Hearing Association, in convention at Columbus, Ohio, November 11, 1950.

News And Announcements

Tre Mid-Century White House Conference on Children and Youth was held in Washington, D. C., December 3-7, 1950 with over 5000 in attendance. The goal of the conference was far reaching: a society in which every child will have a fair chance for a healthy personality. More specifically, its purpose was to provide at least partial answers to two questions: (1) How can children be helped to develop the mental, emotional, and spiritual qualities essential for individual happiness and responsible citizenship; and (2) what physical, economic, and social conditions are necessary for this development?

All parts of the Conference were closely related in a unified pattern. At the General Sessions, outstanding speakers such as Margaret Meade and Benjamin Spock discussed the essence of what is known about healthy personality development and discussed the bearing of the knowledge on all that is done with and for children. In the 31 panels, leaders presented more specific information about certain critical aspects of personality development. The 35 work groups were the heart of the Conference. Here the delegates dealt concretely with the problems and issues involved in the attainment of the Conference goal.

Two of the work groups were of particular interest to speech and hearing therapists: *Children with Severe Physical and Mental Limitations,* led by Morton A. Seidenfeld, Director, Psychological Services, National Foundation for Infantile Paralysis; and *Children with Severe Emotional Disorders,* led by Frederick H. Allen, M.D., Director, Philadelphia Child Guidance Clinic.

Each work group was multi-professional, representing many different fields of interest and experience. Each delegate was assigned to a specific work group and remained with it until its task was done. The delegate from the American Speech and Hearing Association was President Wendell Johnson.

The Conference culminated in a final, plenary session where plans for future action were adopted, based on the findings of the Work Groups and the report of the Committee for Conference Recommendations. Various publications will be issued from time to time summarizing the reports of the four Advisory Councils and the over-all findings and recommendations.

State programs for maternal and child health services, for services to crippled children and for child welfare services will be enlarged through increased Federal grants authorized by Congress in its amendments to the Social Security Act. The increased grants totalling $41,500,000, compared to the present $22,000,000 total, were achieved during this session when the Senate strengthened the original Bill passed by the House last year. The amendments authorized Congress to increase Federal annual grants to state and local maternal and child health

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News And Announcements is edited by Miriam D. Pauls, The Johns Hopkins University.

PAST PRESIDENTS
THE AMERICAN SPEECH AND HEARING ASSOCIATION

The Silver Anniversary Banquet at the Twenty-sixth Annual Convention honored past presidents of the American Speech and Hearing Association. Above are the 10 past presidents who were present: left to right, Lee Edward Travis, 1935-36; Sara Stinchfield Hawk, 1939-40; Samuel D. Robbins, 1941-42; Robert West, 1925-28; Wendell Johnson, 1950; Bryng Bryngelson, 1943-44; Clarence T. Simon, 1946; Herbert Koepp Baker, 1947; Martin F. Palmer, 1948; D. W. Morris, 1949. Unable to attend were Smiley Blanton, 1933-34, and Harry Heltman, 1945. Elmer L. Kenyon, 1929-32, and Max A. Goldstein, 1937-38, are deceased.

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programs from $11,000,000 to $16,500,000. Then Congress appropriated $13,200,000 for these programs, which include pre-natal and well-baby clinics, medical and dental care for school children, and training of professional personnel for the balance of the fiscal year.

The state and local programs for crippled children's services are entitled under the new amendments to receive annual grants totalling $15,000,000 instead of the $7,500,000 they received formerly. For the remainder of the fiscal year, these programs, which provide diagnostic clinics and treatment for crippling diseases and injuries, will get $9,975,000 from the Federal government.

The National Society for Crippled Children and Adults is seeking professionally qualified speech therapists and pathologists to take interesting positions with a number of its member societies in many sections of the country.

Opportunities are available for speech therapists to work in programs for the handicaped and with cerebral palsied children at the preschool level and in public school systems, as well as in adult programs in rehabilitation centers, clinics and hospitals. Openings are listed in almost every state and most offer fine opportunities for growth and professional recognition. The Personnel Services of the National Society, which recruits candidates for all types of professional posts in rehabilitation programs, is conducted through the National Personnel Registry and Employment Exchange. The Registry is free to candidates seeking positions and to employers. It is conducted as a public service in the interest of staffing effectively, with competent professional personnel,

community rehabilitation projects and services. The Registry offers personal attention in fitting individuals to the type of position desired; it is an active service which maintains constant contact with those who are registered; it is an excellent source for seeking information about professional positions in all sections of the United States.

Further information may be secured by writing The National Society for Crippled Children and Adults, Inc., 11 South LaSalle Street, Chicago, Ill.

The forty-first meeting of the Acoustical Society of America will be held on May 10-12, 1951 in Washington, D. C. at the National Bureau of Standards as one of a series of technical meetings throughout 1951 contributing to the Semi-Centennial Celebration of the founding of the Bureau. Symposia will be held on the subjects of Architectural Acoustics and Underwater Sound. Visits to interesting portions of the Bureau will be arranged.

The International Council of Exceptional Children will hold its annual convention April 18-21, at the Hotel New Yorker, New York City. An attendance of more than 2000 people interested in all areas of handicapped children is expected.

The convention of the American Association for Cleft Palate Rehabilitation will be held at the Dental School of Temple University during the last week in April or the first week in May. Eugene McDonald, Pennsylvania State College, as editor of the organization has been authorized to publish four newsletters and one bulletin annually. The first newsletter was published in January, 1951 and is available upon request.

The National Society for Crippled Children and Adults will hold its 1951 annual convention in Chicago, October 3-6 at the Palmer House. New techniques and new advances in the care and treatment of crippled children will be emphasized throughout the convention meetings by medical and other leaders in the specialized professional fields concerned with crippling conditions.

As a service to parents of crippled children and to physicians and others working with them, exhibit space will be made available to scientific and professional organizations, to publishers of medical and technical books and manufacturers of specialized equipment.

The convention will bring to Chicago representatives from the 2,000 crippled children's societies throughout the United States, Alaska, Hawaii and Puerto Rico which are affiliated with the National Society.

The Third Annual Florida Conference on Services to Crippled Children will be held on the Florida State University campus March 19 and 20, 1951. Featured speakers will be Clarence T. Simon, Charles Van Riper, Herbert K. Cooper, Wendell Johnson, Harriet Gillette, Eugene McDonald, S. Richard Silverman, Leslie B. Hohman, and Spencer F. Brown.

A conference on audiology held at the University of Washington, December 4-5, 1950, was sponsored by the Puget Sound Academy of Otolaryngology, the University, and the Washington State Department of Health.

Waring J. Fitch was the conference coordinator. Among the conference participants were: Verne Ray, Asso-

ciate Dean of the Graduate School, University of Washington; J. J. Jones, Chief, Preventive Medical Service, State Department of Health; James W. Phillips, Puget Sound Academy of Otolaryngology; William G. Hardy, Director, Speech and Hearing Center, Johns Hopkins University; James W. Carrell, Director, Speech and Hearing Clinic, University of Washington; Lamar A. Beyrs, Head, Maternal and Child Health and Crippled Children's Services, State Department of Health; Jack Bangs, Assistant Professor of Speech, University of Washington; Lloyd M. Farner, Medical Administrative Consultant, Division for Vocational Rehabilitation; G. Ward Kemp, Boards of Directors, National and Seattle Hearing Societies; and Emily Pratt Kozlowski, formerly Specialist for Eyes and Ears, Health and Physical Education Division, New York State.

The second annual convention of Sigma Alpha Eta, national speech and hearing society for students, was held at the Deshler-Wallick Hotel in Columbus, Ohio, November 8-10, 1950. Thirty delegates representing 10 active and prospective chapters were in attendance. The convention included meetings of the 1949-50 Executive Council, the General Assembly, and the 1950-51 Council.

The guest speaker at the Assembly was Wendell Johnson, who pointed up the grave responsibility inherent in the role of the speech correctionist, and suggested ways in which Sigma Alpha Eta might enrich its programs in order that its members may be better equipped to meet the challenge.

A panel discussion followed, in which representatives of the various chapters shared with the group ways and means of furthering speech correction through Sigma Alpha Eta activities. In addition to regularly-scheduled professional meetings — a basic requirement of the organization — the following projects were reported: A recruitment program aiming to acquaint high school students with the speech and hearing field; an annual undergraduate conference for the purpose of bringing together all undergraduates in the speech correction curricula throughout the state for professional stimulation and sociability; open house and original radio programs to acquaint the layman with the importance of clinical work; tours of speech clinics in nearby cities and states; assistance in the publication of a round robin letter circulated among active speech therapists throughout the state; and a service program aiming to test the hearing of all students enrolled in the college. Social programs to foster departmental comradery were reported by most of the groups.

Officers elected for the present year are: President, Ruth Sydney, Supervisor, Speech Clinic, University of Pittsburgh; Vice-President, Ellen Kauffman, Director, Speech and Hearing Clinic, State Teachers College, Montclair, New Jersey; Executive Secretary, Dr. C. Cordelia Brong, Supervisor, Speech and Hearing Clinic, The Pennsylvania State College; Treasurer, Donald Hess, Director, Speech and Hearing Clinic, State Teachers College, Indiana, Pennsylvania; Editor, Margaret Byrne, Director, Speech and Hearing Clinic, Mount Mercy College, Pittsburgh, Pennsylvania. The four members-at-large on the 1950-51 Council are students from the University of Pittsburgh, Bowling Green State University, The Pennsylvania State College, and Brooklyn College.

At the meeting of the 1950-51

Council on November 10, the following persons were awarded honorary memberships in recognition of their contributions to the organization: Dr. Eugene T. McDonald, Director of the Speech and Hearing Clinic, The Pennsylvania State College, for his contribution as originator of the society; Mrs. Joseph O'Brien of State College for her generous assistance in writing the original constitution of the national organization.

Plans for next year's convention are being laid within a framework similar to that of the 1950 event—with the addition of a Sigma Alpha Eta luncheon to provide further opportunity for fellowship among members from the various chapters. The conventions of the society are held annually at the time and place of the American Speech and Hearing Association Conference.

The next Executive Council meeting will be held in Pittsburgh in April, 1951. Petitions for charters will be honored at that time.

Sigma Alpha Eta now has active chapters at these colleges and universities: The Pennsylvania State College; State Teachers College, Lock Haven, Pennsylvania; Bowling Green State University; University of Pittsburgh; State Teachers College, Montclair, New Jersey; Queens College; University of Utah; Southwestern Louisiana Institute; Mississippi Southern College; University of Mississippi; Northern Illinois State Teachers College; George Washington University; and Iowa State Teachers College. Six additional groups are serving their probationary periods and will be admitted to the organization during the present academic year.

Inquiries regarding Sigma Alpha Eta may be directed to the Executive Secretary of the organization.

The Columbus Lost Cord Club was formed in May, 1949 for men and women who are learning or using esophageal speech. There are now 50 members in the club, which is under the guidance of the Speech and Hearing Clinic of Ohio State University. Its successive advisors have been Dr. John Anderson, Ronald Hansen, and Keith K. Neely.

Ohio State University is offering a course during the winter quarter on the Medical Aspects of Speech and Hearing Disorders to be taught by 15 physicians, surgeons, and dentists. Dr. Wilbur Moore, Central Michigan College of Education, will teach courses in general semantics and speech pathology during the summer quarter, 1951. Dr. Moore has been a recent lecturer at Ohio State as have been Dr. Harvey Fletcher, Columbia University; Dr. Don Lewis, State University of Iowa; and M. V. Moriority, Illinois School for the Deaf.

Western Reserve University Summer Session announcement contains courses in lipreading, hearing aids, auditory training, hearing conservation, speech correction for the brain injured, stuttering, speech correction, and speech, language and reading for the deaf. A new course, Speech Problems of the Preschool Child, will be offered. The Second Session will be devoted to Speech Correction for Teachers and Clinical Practice in Audiology and Speech Correction. The First Session begins June 18; Second Session, July 30.

The Association for the Aid of Crippled Children, New York City, has awarded $60,000 to Syracuse University for the expansion of its de-

partment of special education for exceptional children. The grant is to be used for the general development of that portion of the special education program devoted to the training of personnel to work with handicapped children. It is designed to help meet the current demand for 80,000 more trained teachers of physically handicapped children.

The university's special education department has rapidly expanded its program during the past four years to include complete curricula for teaching the various kinds of handicapped children—crippled, deaf, hard of hearing, speech handicapped, and mentally retarded on both an undergraduate and graduate level. Facilities of the university's Hearing and Speech Center, Psychological Service Center, as well as campus and community clinics, and departments of several colleges on campus have been joined together to make an integrated special education program. Students receive course work in the School of Education combined with practical training in medical care, psychological counseling, and remedial service under the guidance of the State University of New York College of Medicine, Psychological Service Center and the Hearing and Speech Center.

A series of 30 visual-hearing films in color, developed by the late Dr. Marie K. Mason of Ohio State University, have recently been made available to teachers of the deaf and hard of hearing. An accompanying manual is soon to be published. A booklet describing the features of this series has been sent to many interested professional people. Copies of the film may be rented or purchased through Ohio State University.

To meet the increasing need for a service that will aid teachers in the selection and purchase of phonograph records for classroom use, the Children's Reading Service has just published the *Annotated List of Phonograph Records.* This new catalog, edited by Dr. Warren S. Freeman, Dean of the College of Music, Boston University, presents about 500 carefully chosen recordings from many record companies, arranged by subject areas and grade groups. Recordings are listed not only for music, but also for language arts, science and social studies. Each listing in the catalog includes the title, composer, recording artist, available speeds (33, 45, 78 rpm), the price for each speed, the size, whether or not it is unbreakable, and a description.

To assist teachers in securing the records of their choice, the Children's Reading Service has set up a central ordering service whereby any record, whether or not it is listed in the catalog, will be supplied at the best possible school discounts. Copies of the new catalog may be obtained by sending your request, with 10 cents in stamps or coin to cover postage and handling charges, to Children's Reading Service, 106 Beekman Street, New York 7, New York.

Graduate Assistantships, Fellowships, and Scholarships

This section lists part-time graduate appointments, fellowships, and scholarships specifically designated for graduate work in speech and hearing. General university fellowships and scholarships, unspecified as to area of concentration, and full-time graduate positions will not be included.

Copy should be submitted to the Editor, and should include formal title of appointment, institution, and unit; dates, general duties, and remuneration; name and address of persons receiving applications. Deadline for receiving copy is two months prior to the publication date.

Clinical Assistantships. University of Alabama. Speech and Hearing Clinic. Starting June or September, 1951. Ten hours of individual and group instruction per week during the academic year. $900; remission of out-of-state tuition. Student is expected to enroll for three-quarters graduate load. Other assistantships also available involving 5 hours of instruction per week; paying $450; remission of out-of-state tuition; full academic load required. Some assistantships starting in September may combine teaching and clinical work. Address T. Earle Johnson, Department of Speech, University, Alabama.

Clinical Assistantships. Purdue University. Speech and Hearing Clinic. Starting September or February. Half-time; 20 hours per week of clinical assistance. $1200 for regular school year; waiver of tuition fees. Student may enroll for 10 semester hours of graduate courses. Address M. D. Steer, Speech and Hearing Clinic, Purdue University, West Lafayette, Indiana.

Clinical Assistantships. University of Illinois. The Speech Clinic, Department of Speech. Starting September or February. Half-time; 20 hours per week of clinical assistance. $1200 for nine months; remission of tuition. Student expected to enroll for three-fourths of normal graduate course load. Address Karl R. Wallace, 138 Lincoln Hall, University of Illinois, Urbana, Illinois.

Clinical and Research Assistantships. Ohio State University. Department of Speech. Starting June, September, January, or March. 15 to 25 hours per week of clinical or research assistance. Two-thirds to three-fourths graduate load. Address W. Hayes Yeager, Chairman, Department of Speech, The Ohio State University, Columbus, Ohio.

Research, Clinical and Technical Assistantships. State University of Iowa. Speech Clinic and Experimental Phonetics Laboratory. Starting September 1. Half-time; 20 hours per week. $720 to $900 for nine months; remission of tuition. Assistants allowed to carry 12 semester hours of course work. Applications for the 1951-52 academic year received until July 1, 1951. Address Wendell Johnson, Speech Clinic, State University of Iowa, Iowa City, Iowa.

Research Assistantships. Purdue University. The Voice Science Laboratory, Department of Speech. Starting September or February. Half-time; 20 hours per week of laboratory research assistance. $1200 for regular school year; waiver of tuition fees. Student may enroll for 10 semester hours of graduate courses. Address M. D. Steer, Voice Science Laboratory, Department of Speech, Purdue University, West Lafayette, Indiana.

Research Assistantships. University of Illinois. The Speech Research Laboratory, Department of Speech. Starting June, September or February. Half-time; 20 hours per week of laboratory research assistance. $1200 for nine months, or $1465 for eleven months; remission of tuition. Student expected to enroll for three-fourths of normal graduate course load. Address Grant Fairbanks, 321 Illini Hall, University of Illinois, Urbana, Illinois.

Teaching Assistantships. Purdue University. Department of Speech. Starting September or February. Half-time; 8 hours per week of clinical work and 12 hours teaching duties in required beginning Speech course. $1200 for regular school year; waiver of tuition fees. Student may enroll for 10 semester hours of graduate courses. Address A. H. Monroe, Department of Speech, Purdue University, West Lafayette, Indiana.

Graduate Scholarships. Central Institute for the Deaf. Tuition scholarships for teacher training course in education of the deaf and hard of hearing, and in speech correction. Address Registrar, Central Institute for the Deaf, 818 South Kingshighway, St. Louis 10, Missouri.

Fellowships. Central Institute for the Deaf. Fellowships in education of the deaf and hard of hearing, speech correction, audiology, acoustics, neuro-physiology, experimental otology. Stipends to be arranged according to background and needs of applicant. Address Registrar, Central Institute for the Deaf, 818 South Kingshighway, St. Louis 10, Missouri.

Fellowships. The Johns Hopkins University. Hearing and Speech Center. Two spe-

cial fellowships in audiology and speech awarded annually; may be continued at discretion. $3100; no duties beyond satisfactory pursuit of graduate requirements. Applications considered at any time; awards made in June. Address William G. Hardy, Hearing and Speech Center, The Johns Hopkins Hospital, Baltimore 5, Maryland.

Fellowships. University of Wichita (Employment in the Institute of Logopedics). Eight service fellowships; duties primarily clinical. $200 to $250 per month; student is expected to pursue course work toward the M.A. degree. Address Martin F. Palmer, Institute of Logopedics, 2400 Jardine Drive, Wichita 14, Kansas.

Fellowship. State University of Iowa. Fellowship in audiology. Starting September 1. Half-time; 20 hours per week. $1000 for nine months; remission of tuition. Fellows allowed to carry 12 semester hours of course work. Applications for the 1951-52 academic year received until July 1, 1951. Address Wendell Johnson, Speech Clinic, State University of Iowa, Iowa City, Iowa.

Personals

Martin Dempsey has been appointed Chief Engineer with the Speech and Hearing Clinic and the Speech Science Laboratory of Purdue University. Last year Mr. Dempsey was a member of the research staff of the Bell Telephone Laboratories.

Russ Connor has accepted a position as speech clinician with the University of California Medical Center, San Francisco, California. He was formerly speech therapist at the Institute of Logopedics, Wichita, Kansas.

The following were appointed to the speech staff in the Arlington County Public Schools, Arlington, Virginia: Carlton McEachern, Robert Johnson, Olive Hensel, James Earle, William Formaad, Margaret Childs, Chester Boyd, Ruth Breen, and Patricia Callery Waslewski. Zelda Horner Kosh is Supervisor of the Speech Education Department.

George H. Hill has received a $500 scholarship from the Audiology Foundation for research in hearing problems of the hard of hearing adult, to be conducted at the Cleveland Hearing and Speech Center.

D. Wayne Smith (Western Reserve University) has accepted employment as Hearing Conservation Specialist of the Oregon State Board of Health. This department has five traveling audiometrists and cooperates closely with the local and state education and crippled children's services.

Borah Shnaider, Graduate Fellow at the Cleveland Hearing and Speech Center, has assumed the position of Executive Secretary of the newly formed Cincinnati Speech and Hearing Center. This Center is the result of collaboration and community planning of the Cincinnati Hearing Society, the Cincinnati Community Chest and medical and educational officials of Cincinnati.

Esther McQuade is now employed as Instructor in Speech and Director of the Speech and Hearing Clinic at the University of Maryland. She was formerly speech clinician at the Cleveland Hearing and Speech Center at Western Reserve University.

Ruth Withrow, formerly instructor at the Cleveland Hearing and Speech Center, has taken a position as therapist at the Speech and Hearing Center of Walter Reed Hospital, Washington, D. C.

Charles R. Elliott, Assistant Director of the Speech and Hearing Clinic and Assistant Professor of Clinical Speech at Pennsylvania State College, has resigned effective February 1, 1951 to accept a position in the Speech and Hearing Clinic of Northwestern University. In addition to his work on campus, Mr. Elliott will spend three half-days a week at the Children's Memorial Hospital in Chicago.

Recent students in Speech Science at Ohio State University fill positions in the following institutions: John O. Anderson, Southern Illinois University, Carbondale, Illinois; Dick Yenrick, Hearing Conservation Clinic, Lancaster, Pennsylvania; Betty Slaight and Marian Auscherman, Ohio State Department of Health, Columbus, Ohio; Christine Jones, Clark School for the Deaf, Northampton, Massachusetts; Chester J. Atkinson, Acoustic Laboratory, School of Aviation

Medicine, U. S. Naval Air Station, Pensacola, Florida; Ronald Hansen, Thermometrical Laboratory, Wright Field, Dayton, Ohio; Carl Weaver, Speech Therapist, Fairmont High School, Dayton, Ohio; Mary Reams, Speech Therapist, Moultrie, Georgia.

Donald Hess has accepted a position at the State Teachers College, Indiana, Pennsylvania. He is directing a clinic program and teaching courses in clinical speech.

Betty McGhee is Speech and Hearing Consultant for the public schools of Jackson, Tenn.

Charles Schiefer is a member of the Pennsylvania State College staff serving as instructor in clinical speech at the Altoona Center.

Norma Ames Ricci has joined the staff of the Speech and Hearing Clinic of the State University of Iowa.

Gladys Lou Miller is a speech and hearing teacher with the Division of Research and Guidance of the Greenwich, Connecticut, Public Schools.

Lois Bibey has accepted a position as speech therapist at the Vineland Training School, Vineland, New Jersey.

Charles F. Diehl is now director of the Speech Clinic at the University of Kentucky. He was formerly on the faculty of Indiana State Teachers College.

Asa Berlin has been appointed Assistant Professor of Speech Education at Pennsylvania State College. He is in charge of the Out-Patient Clinic and is teaching courses in voice science and audiology.

James Sonnett Greene, M.D., founder and medical director of the National Hospital for Speech Disorders, New York City, died on September 17, 1950. Dr. Green held a unique position in the field of speech correction for the past 34 years. In 1916 he opened the first medical center devoted solely to the diagnosis and treatment of voice and speech conditions.

In 1936, the work of the hospital came to the attention of the late Dr. Bernard Sachs, neurologist and former president of the New York Academy of Medicine. He interested the philanthropist, Lucius Littauer, in the institution, with the result that three years later he presented Dr. Greene with the seven-story building it now occupies. Over 75,000 patients have been seen at the institution to date.

Dr. Greene was the author of two books on speech disorders as well as a variety of monographs. Among his activities, Dr. Greene was consultant on voice disorders to Memorial Hospital and to the New York Eye and Ear Infirmary, and a lecturer at the Graduate School of Medicine of the University of Pennsylvania. In 1940 Dr. Greene was awarded the gold medal of the American Laryngological, Rhinological, and Otological Society for his 'conspicuous public service in alleviation of speech defects.'

Notices

Members of ASHA are asked to check their listing in the 1950 Annual Directory, and send all corrections or changes to the Secretary-Treasurer, George A. Kopp, Wayne University, Detroit, Michigan.

The following issues of the *Journal of Speech Disorders* are out of stock:

1939: September
1940: September, December
1941: All issues
1942: September, December
1944: All issues

Persons who are willing to furnish any of these issues should write to George A. Kopp, Speech Clinic, Wayne University, Detroit, Michigan. The Association will pay for the copies plus the cost of mailing.

REPORT OF THE CONVENTION

American Speech and Hearing Association

COLUMBUS, OHIO, NOVEMBER 7-11, 1950

COUNCIL MEETINGS

November 7, 1950, 8:15 a. m.

Meeting was called to order by President Wendell Johnson. Members present were: Ollie Backus, Harlan H. Bloomer, Raymond Carhart, Grant Fairbanks, Margaret E. Hall, George A. Kopp, Eugene T. McDonald, Henry M. Moser, Martin F. Palmer, Gordon Peterson, S. Richard Silverman, M. D. Steer, and Harold Westlake.

Minutes of December 1949 and April 1950 Council Meetings. Kopp presented the minutes of Council Meetings held December 1949 and April 1950 as published in the *Journal*. Moved by Fairbanks and seconded by Silverman that minutes as published be approved. Passed.

Joint Payment of Dues. Because of additional work and expense, possible confusion and delay in transaction between state associations and ASHA business office in payment of dues, the questionable results of joint payment of dues in regard to increasing membership in ASHA, and the possible change in dues incident to the proposed reorganization of ASHA membership structure, the Secretary-Treasurer recommended to the Council that the provision of joint payment of dues by members of state speech correction associations and ASHA be rescinded. Moved by Silverman and seconded by Backus that the above recommendation be approved. Passed.

Insignia. Moved by Steer and seconded by Backus that the question of insignia be referred to the Committee on Liaison. Passed.

Retired Members. Moved by Fairbanks and seconded by Steer that the wording of the provision regarding Honorary Life Fellows, By-Laws, Section 8, IV, D, be referred to the Committee on Constitutional Revision with recommendation that it seek advice from Council. Passed.

Placement Service. Moved by Steer and seconded by Fairbanks that the Executive Vice-President be instructed to study the problem of placement service and report back to the Council for future action. In the interim, the Secretary may refer all inquiries concerning placement to the bureaus of the Speech Association of America and the National Society for Crippled Children and Adults, Inc. Passed.

Speech Pathologists and Audiologists in Government Service. Moved by Fairbanks and seconded by Backus that problems relating to speech pathologists and audiologists in government service, civil service designations, and related matters, be referred to the Committee on Liaison. Passed.

Booklet on Stuttering. Moved by Hall and seconded by Silverman that a copy of the booklet, *Stuttering*, be sent to all present members of ASHA. Passed.

Report of President-Elect. Moved by Fairbanks and seconded by Silverman that the report of the President-Elect be accepted. Passed.

A written copy of this report is on file in the Secretary's office.

Report of Vice-President. Moser presented his views on the duties and responsibilities of the Vice-President, wished his successor luck for the coming year, and remarked that this year's program constituted his report.

Moved by Steer and seconded by Bloomer that this report be accepted. Passed.

Report of Vice-President-Elect. Moved by Carhart and seconded by Peterson that the report of the Vice-President-Elect be accepted. Passed.

A written copy of this report is filed in the Secretary's office.

Report of Editor. Fairbanks presented the report of the Editor. Moved by Steer and seconded by Carhart that this report be accepted. Passed.

Hall suggested that in the geographical listing the information about the class of membership and type of clinical certification be added; that annually the Directory listings be sent to members for approval and correction. She presented a list of corrections in the 1950 Directory re-membership ratings.

Moved by Fairbanks and seconded by Kopp that in consideration of services rendered, the Association pay $300.00 annually to the Assistant to the Editor, in addition to the salary paid by the University of Illinois; that such sum be paid in full at the end of each calendar year, the first payment to be made on 31 December 1950; that such annual payments prevail as long as the present arrangements for the Editorial Office at the University of Illinois are continued. Passed.

Moved by Fairbanks and seconded by Carhart that the Editor and the Business Manager of the *Journal* be authorized to continue publication of additional Monograph Supplements on an indefinite basis, subject to editorial and financial considerations. Passed.

Moved by Fairbanks and seconded by Steer that the Secretary-Treasurer be instructed to write a letter to Mr. Russell Guin, Vice-President of The Interstate Printers and Publishers, Inc., Danville, Illinois, expressing appreciation for that firm's cooperation in connection with publication of the *Journal*. Passed.

Moved by Palmer and seconded by Carhart that a letter of commendation be written by the Secretary to the Editor of the *Journal of Speech and Hearing Disorders* for his work on the *Journal*. Passed.

Moved by Carhart and seconded by Peterson that letters of appreciation be written by the President of ASHA to all universities and agencies that have contributed assistance to the ASHA during the current year. Passed.

A written copy of the Editor's report is on file in the Secretary's office.

Recessed from 11:45 a. m. to 1:00 p. m.

Report of the Committee on Academic and Professional Preparation. Palmer submitted the report of the Committee on Academic and Professional Preparation.

Moved by Carhart and seconded by Bloomer that this report be accepted. Passed.

A written copy of this report is on file in the Secretary's office.

Report of the Committee on Ethical Practice. Westlake submitted the report of the Committee on Ethical Practice.

Moved by Carhart and seconded by Fairbanks that this report be accepted. Passed.

A written copy of this report is on file in the Secretary's office.

Report of the Advisory Committee on Hearing Disorders. Carhart reported that because of the impending changes of the requirements for membership and certification the committee was inactive during the year.

Moved by Backus and seconded by Palmer that this report be accepted. Passed.

Report of the Committee on Association Honors. The committee recommended that the Honors of the Association be awarded to Clarence T. Simon.

Moved by Hall and seconded by Carhart that this report be accepted. Passed.

Moved by Steer and seconded by Peterson that a sub-committee (Carhart and Backus) be appointed to bring in suggestions on Honors awards to the Council at its next meeting. Motion lost.

Report of Committee on Budget. Kopp presented the report of the Committee on Budget.

Moved by McDonald and seconded by Silverman that this report be approved with commendation. Passed by unanimous rising vote of the Council.

A written copy of this report is on file in the Secretary's office.

Committee on Mid-Century White House Conference. Johnson gave the report for D. J. Mase who was not present. The December meeting of the White House Conference is to be attended by Johnson, Steer, Mase, and Ernest H. Henrikson.

Moved by McDonald and seconded by Hall that this report be accepted. Passed.

Recessed from 4:30 p. m. to 7:00 p. m.

Reorganization. The Council resolved itself into Committee of the Whole for the purpose of discussing reorganization plans and ways of effecting the proposed changes.

Adjourned at 10:15 p. m.

November 8, 1950, 11 a. m.

Meeting was called to order by the President. Members present were: Ollie Backus, Harlan H. Bloomer, Raymond Carhart, Grant Fairbanks, Margaret E. Hall, George A. Kopp, Eugene T. McDonald, Henry M. Moser, Martin F. Palmer, Gordon Peterson,

S. Richard Silverman, M. D. Steer, and Harold Westlake.

Report of Committee on Terminology. Samuel D. Robbins presented the report of the Committee on Terminology with recommendations concerning the duties and functions of the Committee.

Moved by Backus and seconded by Steer that the report be accepted. Passed.

A written copy of this report is on file in the Secretary's office.

Robbins next presented two plans for the possible disposition of the publication, *A Student's Dictionary of Terms Dealing with Disorders of Speech.* His first plan involved the printing of 2,000 copies by one publisher at a cost to the Association of $400.00. His second plan proposed that the authors accept an offer made by another publisher, who agreed to publish the *Dictionary* without cost to the authors or to the Assocation.

Sara Stinchfield Hawk reviewed the history of her work in connection with the *Dictionary*. Both Robbins and Hawk expressed a preference for Plan One.

In the discussion that followed, considerable difference of opinion was expressed and final action concerning the matter was postponed until afternoon with the understanding that the members of the Committee on Terminology, with the addition of Hawk, would survey the implications of the suggestions during the lunch hour.

Recessed from 12:15 p. m. to 1:15 p. m.

Report of the Committee on Terminology (Continued). Fairbanks reported as Editor that the Committee on Terminology had reached an agreeable conclusion; that, for the welfare of all concerned, the second plan proposed by Robbins is recommended to the Council with the understanding that the Association cancel all claims and responsibility for the publication of the *Dictionary;* that all materials and assets including copyright, accrued by the Association in connection with the *Dictionary*, shall become the property of the authors; that there shall be no mention of the Association in the *Dictionary* when published; and, that the Association waive the suggestion that 300 copies of the *Dictionary* be given to the Association.

Moved by McDonald and seconded by Carhart that the above recommendation be accepted. Passed.

Moved by Palmer and seconded by Carhart that the Secretary-Treasurer write to all the members to whom the Association is obliged to provide the *Dictionary*, and state that the Association is unable to furnish the *Dictionary* under the original agreement and offers the equivalent of the *Dictionary* in other publications of the Association. Passed.

Moved by Fairbanks and seconded by Westlake that the Committee on Constitutional Revision be directed to include the Committee on Terminology in the Constitution and to specify the functions of the Committee on Terminology in accordance with the recommendations in the above report. Passed.

Report of Committee on Exchange of Materials. Louis M. DiCarlo, chairman, presented a financial statement for the Committee and introduced Albert O. Weissberg who presented the report of the Committee.

Moved by Silverman and seconded by Steer that this report be accepted with commendation. Passed.

Fairbanks moved and Carhart seconded that Committee on Constitutional Revision consider the continuation of the Committee on Exchange of Materials. Passed.

Moved by Silverman and seconded by Steer that a letter of appreciation to Syracuse University be included in the group of universities to be thanked, according to previous Council action. Passed.

Johnson mentioned possibility of publishing report of materials being published by the National Society for Crippled Children and Adults, Inc. It was proposed that the Committee on Exchange of Materials submit materials to the Editor.

A written copy of this report was not submitted to the Secretary.

Reorganization (Continued). The Council again resolved itself into Committtee of the Whole for the purpose of continuing its consideration of the reorganization plans.

The Council returned to executive session at request of the President.

Moved by Palmer and seconded by Carhart that the general substance of actions pertinent to reorganization discussed during the periods when the Council was acting as if in Committee of the Whole be approved and that a written statement of such actions be prepared for the Council meeting at 7:00 p. m. Passed.

Kopp, McDonald and Fairbanks were appointed as a committee to prepare the statement.

The Council began consideration of the report of the Committee on Credentials regarding new members.

Recessed from 5:15 p. m. to 7:00 p. m.

Reorganization (Continued). McDonald read the committee report which had been cast in the form of the following motions.

1. Moved by Fairbanks and seconded by Hall that there be transmitted to the membership for vote, a new membership plan to consist of two classes, Members, and Associates; that the requirements for Members be the bachelor's degree or higher in the general area of speech and hearing or tangent areas, with an annual dues payment of $8.00; that there be no requirements for Associates, and that the annual dues for Associates be $4.00; that in the transition from the present plan to the proposed plan, Fellows, Honorary Fellows, Professional, and Clinical Members will become Members, and Associates will remain Associates; that the Members shall comprise the voting body of the Association. Passed.

2. Moved by Carhart and seconded by Hall that a plan of certification of clinical competency be adopted; that a Basic Clinical Certificate be awarded to Members whose training and experience approximate that of the present Clinical Member; that an Advanced Clinical Certificate be awarded to Members whose training and experience approximate that of the present Professional Member; that both of these certificates specify a specialization in either speech or hearing; that in the transition from the present plan to the proposed plan, the Advanced Clinical Certificate be awarded to present Fellows and Professional Members; that the specification of speech or hearing be at the option of the applicant except that any applicant desiring certification in both speech and hearing shall submit his credentials for review; that the Basic Clinical Certificate be awarded to all present Clinical Members; that the specification of speech or hearing be at the option of the applicant except that any applicant desiring certification in both speech and hearing shall submit his credentials for review. Passed.

3. Moved by Fairbanks and seconded by Kopp that a mechanism of individual recognition of achievement of Members to be known as the Fellowship be adopted; that all present Fellows and Honorary Fellows received this award automatically; that an appropriate committee of the Association review the qualifications of present Professional and Clinical Members for possible awarding of the Fellowship. Passed.

4. Moved by Fairbanks and seconded by Palmer that the following revisions of committee structure of the Association be recommended to the Membership in order to effect the proposed reorganization:

a. That a Committee on Committees be established consisting of the officers of the Association and the Editor, with the President-Elect as chairman; that the duties of this Committee are to recommend to the Council personnel of all appointive committees.

b. That a Committee on Membership be established consisting of the Secretary-Treasurer as Chairman, and three additional appointive members representative of the fields of speech pathology, audiology, and experimental phonetics; that the duties of this committee are to process applications for Members and Associates, and exercise general supervision over matters relating to membership.

c. That a Committee on Clinical Standards in Speech, and a Committee on Clinical Standards in Hearing, shall be established; each committee shall consist of an appointed chairman, and four other members, all of whom hold the Advanced Clinical Certificate in the respective area; that these Committees shall study and define the requirements for certification of clinical competency in their respective areas; that each Committee shall refer its recommendations regarding requirements for certification to those persons who have been certified in the area in question and that in this they shall be regarded as representative of those persons; that the recommendations of these Committees and of their respective groups shall be transmitted to the Council for approval.

d. That a Committee on Clinical Certification be established consisting of an elected chairman, and at least eight other appointive members, all of whom hold the Advanced Clinical Certificate; that the duties of this Committee shall be to process applications for certification employing the qualification standards established by the Committee on Clinical Standards in Speech, and the Committee on Clinical Standards in Hearing; that each application for certification shall be acted upon by at least four

members holding advanced certification in the area (speech or hearing) in which the applicant is seeking certification, plus one other Committee member.

e. That a Committee on Honors be established to consist of five appointive members who are Fellows in addition to the President as Chairman ex-officio; that this Committee shall sponsor candidates for the Fellowship and receive other nominations for the Fellowship submitted by any Fellow; that this Committee shall submit such nominations to a vote of the Fellowship, and that they shall transmit the results of such group to the Council for approval; that an additional function of this Committee shall be to make recommendations to the Council for Honors of the Association; that a further duty of this Committee shall be to submit to the Council the customary annual resolutions regarding individuals and agencies to whom the Association owes its thanks.

f. That the Standing Committees on Academic and Professional Preparation, and Credentials be terminated since their functions have been supplanted by other committees.

g. That the Standing Committees on Ethical Practice, Liaison, Program, and Terminology be continued.

h. That the following Committees be terminated: Association Honors, Advisory on Speech Disorders, Advisory on Hearing Disorders, and Advisory on Research.

i. That the following Committees be continued: Budget, Constitutional Revision, Exchange of Materials, Nominations, Speech Correction Fund, Mid-Century White House Conference, Special Reorganization, and Advisory to the Special Reorganization. Passed.

5. Moved by Fairbanks and seconded by Palmer that the Constitution and By-Laws of the Association be amended to effect the above alterations in organization and committee structure of the Association. Passed.

Report of Committee on Credentials. The Council again resolved itself into Committee of the Whole to consider the report of the Committee on Credentials on applications for Professional and Clinical Membership.

Recessed at 5:20 p. m. to 7:30 p. m.

Council continued to consider the report of the Committee on Credentials by Hall. At the end of this report the Council returned to executive session.

Moved by Kopp and seconded by Carhart that the report of the Committee on Credentials be approved and that, in consideration of the report, Professional or Clinical Membership be awarded to 178 persons (see list below).

Chairman-Elect of the Committee on Clinical Certification. Discussion was held regarding the awkwardness at this time of reorganization of the completion of Hall's chairmanship of the previous Committee on Credentials and of the difficulties to be encountered in transition to the new mechanism of certification. In consideration of these problems, and with the consent of Hall, it was moved by Steer and seconded by Fairbanks that Hall be nominated for a term of one year as Chairman of the Committee on Clinical Certification. Passed.

Moved by Fairbanks and seconded by Steer that McDonald be nominated as Chairman of the Committee on Clinical Certification for a term of 4 years to take office Jan. 1, 1952. Passed.

Jurisdiction of Editor. Moved by Steer and seconded by Carhart that the Constitution be amended to provide that all publications of the Association be subject to the jurisdiction of the Editor. Passed.

Time and Place of 1952 Meeting. Moved by Bloomer and seconded by Fairbanks that the 1952 convention be held in conjunction with the Speech Association of America in Cincinnati, Ohio. Lost.

Moved by Palmer and seconded by McDonald that Bloomer's oral report on the 1952 convention time and place be tabled. Passed.

Adjourned at 12:20 a. m.

November 9, 1950, 12:05 p. m.

The President called the Council to order to hear the report of Delyte W. Morris, Chairman of the Committee on Nominations. Members present were: Ollie Backus, Harlan H. Bloomer, Raymond Carhart, Grant Fairbanks, Margaret E. Hall, George A. Kopp, Eugene T. McDonald, Martin F. Palmer, Gordon Peterson, S. Richard Silverman, M. D. Steer, and Harold Westlake.

In consideration of the report of the Committee on Nominations, the Council nominated the following persons for the designated offices:

President-Elect: Harold Westlake
Vice-President-Elect: Stanley Ainsworth

Councilors: Charles Van Riper (3 years), Raymond Carhart (3 years)
Editor: Grant Fairbanks
Chairman, Committee on Clinical Certification: Margaret E. Hall (1 year), Eugene T. McDonald (4 years, beginning Jan. 1, 1952)
Chairman, Committee on Ethical Practice: Spencer F. Brown

Recessed at 12:45 p. m. to 5:00 p. m.

Moved by Steer and seconded by Carhart that a committee be established to work with Edward L. Morris of the National Society for Crippled Children and Adults, Inc. to develop a placement service for ASHA members. Passed.

Moved by Kopp and seconded by Westlake that Alice Chapin, Harry Heltman, Lavilla A. Ward, and Edna Hill Young be awarded Honorary Life Fellowship. Passed.

Meeting adjourned at 5:45 p. m.

November 10, 1950, 12:00 noon.

The President called the meeting to order to complete unfinished business. Members present were: Ollie Backus, Harlan H. Bloomer, Raymond Carhart, Grant Fairbanks, Margaret E. Hall, Ernest H. Henrikson, George A. Kopp, Martin F. Palmer, and M. D. Steer.

Moved by Henrikson and seconded by Bloomer that invitations for Convention locations, extended to the Council, be referred to the Committee on Liaison. Passed.

Moved by Palmer and seconded by Bloomer that a $500.00 Speech Correction Fund Scholarship be established beginning September, 1951. Procedures for the awarding of the scholarship are to be the responsibility of the Speech Correction Fund Committee. Passed.

Bloomer discussed briefly the report of his Committee on Time and Place of 1952 Convention.

Moved by Hall and seconded by Palmer that the time and place of the 1952 and future conventions be guided by a poll of the membership. Passed.

Moved by Steer and seconded by Bloomer that the Chairman of the Committee on Liaison prepare the material for the poll of the membership on time and place of the 1952 convention. Passed.

Moved by Carhart and seconded by Steer that a special member be included on the Program Committee to take care of scientific-non-commercial exhibits at conventions. Passed.

Meeting adjourned at 12:50 p. m.

November 11, 1950, 10:00 a. m.

The President called the meeting to order. Members present were: Ollie Backus, Harlan H. Bloomer, Grant Fairbanks, Margaret E. Hall, Ernest H. Henrikson, George A. Kopp, Martin F. Palmer, M. D. Steer, S. Richard Silverman, and Harold Westlake.

The Executive Vice-President, Henrikson, asked for an explanation of his duties and responsibilities. Since the Executive Vice-President is ex-officio Chairman of the Committee on Liaison, some discussion of his duties in this capacity was presented. It was generally agreed that the office would necessitate considerable travel in establishing and maintaining inter-organizational relationships.

The Council gave general approval to provide a $500.00 annual expense account for the Executive Vice-President.

The Council approved the suggestion that a $300.00 expense account be provided for the Program Committee.

Attention was called to the fact that no formal action had been taken on the date on which the reorganization plans would become effective.

Moved by Kopp and seconded by Fairbanks that the changes in the organization framework and committee structure become effective January 1, 1951. Passed.

Moved by Hall and seconded by Backus that during 1951 the Committee on Clinical Certification circulate to members of the Council at approximately two-month intervals the names of those individuals whom it has approved for certification in speech or hearing; any Council member wishing to object to the certification of an applicant to state his objections in writing to the Chairman of the Committee on Clinical Certification within two weeks; in the absence of any such objection from the Council, each applicant to be notified immediately of his certification. Passed.

Council instructed the chairman of the various committees to report to the Editor in time for publication of activities in the March *Journal*.

Council instructed the Committee on Budget to obtain the legal advice necessary to protect the rights of the Association and individuals involved in the disposition of the *Dictionary*.

Council instructed the President to determine whether or not Bloomer's suggestion to hold a special meeting of the Coun-

cil at Shady Trails Camp during the coming year could be arranged.

Council instructed the Secretary-Treasurer to purchase gavels for all past Presidents.

Meeting adjourned at 11:45 a.m.

Business Meetings

November 9, 1950, 7:00 p. m.

President Wendell Johnson called the meeting to order, welcomed the members and guests to the Silver Anniversary Convention, and expressed his appreciation for the cooperation of the officers, members of the Council, committee members and others who had participated in the business of the Association. Special commendation was extended to Henry Moser, Chairman, and members of the Program Committee for the excellent program of the convention.

Minutes of 1949 Meeting. Moved by S. Richard Silverman and seconded by Harlan H. Bloomer that the reading of the minutes of the 1949 Annual Convention be dispensed with and approved as they had been published. Passed.

Council Actions. Johnson reviewed and summarized the actions of the Council on matters not included in committee reports.

Moved by M. D. Steer and seconded by Silverman that actions of the Council be approved. Passed.

Moved by Grant Fairbanks and seconded by Alan B. Clemons that the report of the Committee on Credentials be accepted. Passed.

Moved by Margaret E. Hall and seconded by Harold Westlake that the Honors of the Association be awarded to Clarence T. Simon as recommended by Council. Passed.

Report of the Committee on Budget. Kopp summarized the report of the Committee on Budget.

Moved by Martin F. Palmer and seconded by Hall that the report of the Committee on Budget be accepted. Passed.

Report of the Committee on Speech Correction Fund. Spencer F. Brown reported that the Committee on Speech Correction Fund had been inactive during the year. Johnson supplemented Brown's statement by reporting that approximately $750.00 has been accumulated in the Fund and that by Jan. 1, 1951 it is expected that there will be approximately $1,500.00 in the Fund.

Moved by Brown and seconded by Steer that the report as given by Brown and supplemented by Johnson be accepted. Passed.

Report of Committee on Mid-Century White House Conference. Steer summarized the actions of the Committee.

Moved by M. B. Burkland and seconded by Pauline Broad that the report be accepted. Passed.

Report of Liaison Officers with National Society for Crippled Children and Adults, Inc. Westlake reviewed the splendid work accomplished in cooperation with the N.S.C.C.A. and presented a comprehensive written report of the year's activities.

Moved by John H. Wiley and seconded by Samuel D. Robbins that the report be approved with commendation. Passed.

A copy of this report is on file in the Secretary's office.

Johnson enumerated the action taken by the Council on reports of other committees.

Moved by Steer and seconded by Elise Hahn that reports as read be approved. Passed.

Honorary Life Fellows. Moved by Gordon Peterson and seconded by Lee E. Travis that Alice Chapin, Harry Heltman, Lavilla A. Ward, and Edna Hill Young be made Honorary Life Fellows as recommended by the Council.

Moved by Fairbanks and seconded by Hall that the motion be amended to include the name of Sara Stinchfield Hawk. Amendment passed.

Motion as amended, passed.

Reorganization. Fairbanks, Chairman of the Enabling Committee on Reorganization, reviewed the background of reorganization proposals, summarized Council actions on reorganization, and outlined the results of the poll of the Membership which was obtained to help the Council in its consideration of this important matter. Because a two-level plan of certification, basic and advanced, was favored by a large majority of the Membership in the poll and approved unanimously by the Council, most of the Council consideration had been focused on the proposed membership plan and a framework of committees through which the membership reorganization could be effected. Fairbanks next presented a resume of the nature and duties of the following new committees: Committee on Committees, Committee on Membership, Committee on Clinical Standards in Speech, Committee on Clinical Standards in Hear-

ing, Committee on Clinical Certification, and Committee on Honors.

Kopp read the formal motions on reorganization as approved by the Council.

Moved by James F. Curtis and seconded by Gilbert C. Tolhurst that the report be accepted for discussion. Passed.

During the discussion Curtis inquired if it would be possible in transition to the proposed new plan for a Fellow or Professional Member to be awarded Advanced Certification in one area and Basic Certification in the other area. The answer was affirmative.

Elizabeth MacLearie asked if it would be possible for an individual to receive Basic Certificates in both speech and hearing. It was explained that the certification plan was permissive of any such set of combinations providing the applicant is qualified, but that it was not envisioned that combined certificates be awarded.

Joseph M. Wepman, Charles R. Elliott, Robert Milisen, Curtis, and others participated in a discussion of the use of the term 'Associate.'

Moved by Steer and seconded by Milisen that the actions of the Council be amended to include that it shall be considered unethical for any Member or Associate of ASHA who does not possess appropriate clinical certification to employ the name of this Association in connection with any form of clinical activity. Passed.

Moved by Fairbanks and seconded by Palmer that the Constitution and By-Laws of the Association be amended to effect the above alterations in organization and committee structure of the Association. Passed.

Election of Officers, Councilors, Editor, and Committee Chairmen. Johnson presented the nominations of the Council.

President-Elect: Harold Westlake
Vice-President-Elect: Stanley Ainsworth
Councilors: Charles Van Riper (3 years), Raymond Carhart (3 years)
Editor: Grant Fairbanks
Chairman, Committee on Clinical Certification: Margaret E. Hall (1 year), Eugene T. McDonald (4 years, beginning Jan. 1, 1952)
Chairman, Committee on Ethical Practice: Spencer F. Brown

Moved by Robbins and seconded by Ernest H. Henrikson that the Secretary cast one ballot for the names read. Passed.

Meeting adjourned.

November 11, 1950, 1:00 p. m.

President Johnson called the meeting to order and reported the registered attendance at the convention to be 628 at noon Friday. General geographical distribution of the 628 showed 411 from the Midwest, 54 from the South, 124 from the East, 30 from the West, and 9 from foreign countries. Official registration by Saturday was reported to be 728.

Johnson explained the action of the Council in regard to establishing a Speech Correction Fund Scholarship.

Moved by M. D. Steer and seconded by Herbert Koepp Baker that the recommendation of the Council to establish a Speech Correction Fund Scholarship be approved. Passed.

Jayne Shover was asked to stand and receive the thanks of ASHA for the splendid cooperation of NSCCA.

Harlan H. Bloomer read the names of the members of the 1951 Program Committee.

Moved by Alan B. Clemons and seconded by Margaret E. Hall that the Council's proposal for the effective date of reorganization be January 1, 1951 be approved. Passed.

George A. Kopp read a letter from Miss Loraine A. Wilson, Secretary-Treasurer of the Ohio Association of Speech and Hearing Therapists, expressing a request of the Ohio organization that the ASHA Council consider the reduction of membership dues from $8.00 to $5.00, or the elimination of the registration fee at the national conventions.

Kopp explained that the $8.00 fee was approved by a majority of the membership in the poll; that because of the indefinite expenses incident to the reorganization at least a year would be needed to determine the size of the operating budget; and that the request would be placed on the agenda for Council consideration at the next meeting.

Baker, Chairman of Committee on Resolutions, presented the following resolutions:

Resolved: That the Association express the most sincere appreciation and its admiration for the warm, friendly, and very earnest and intelligent services performed by its retiring President, Professor Wendell Johnson. When clinical speech pathology, research, and public relations are recalled, Professor Johnson will be the abiding symbol of our Association and what it really

stands for. He has guided it through a critical year of its activities in a way that reflects highest competency and sincere devotion.

Resolved: That the ASHA record here its gratitude and satisfaction for the energetic, imaginative, and fruitful efforts of Vice-President Henry Moser, in advancing the interests of the Association through what is conceded by most members to be the best convention in its history. Professor Moser gave the Association an opportunity to appraise itself and to establish a newer sense of consequence. For this we admire and thank him.

Resolved: That on this occasion of the 25th Anniversary the Association express its deep sense of appreciation to Dr. Sara Stinchfield Hawk and Professor Samuel D. Robbins for their untiring, unselfish, and devoted efforts to promote the ideals for which the Association stands, and for their selfless sense of service to the Association in promoting a dictionary of terminology in our field.

Resolved: That this be an occasion for the Association to reaffirm abiding sense of gratitude to Professor Martin F. Palmer for his continuing and enlightened counsel, his unselfish spirit, and his generous energies in the work of the Association upon his retirement from the Council.

Resolved: That the American Speech and Hearing Association express by this means its continuing sense of security in the editorial judgment, leadership, and vision evidenced by Professor Grant Fairbanks through the Journal, *which publication he has again been elected to guide in the months to come.*

Resolved: That to Lawrence J. Linck, Executive Director, and Miss Jayne Shover, Associate Director, of the National Society for Crippled Children and Adults, Inc. the Association communicate its thanks for the persisting and abundant cooperation, help, and interest in promoting the socially useful projects relating the two agencies. This encouraging and effective mutual association is made effective by the untiring services of its two liaison officers, Dr. Margaret E. Hall and Professor Harold Westlake.

Resolved: That it be recorded here the Association's sense of obligation and gratitude for the efficient assistance of the Committee on Local Arrangements, Ohio State University, Ohio Speech and Hearing Therapists Association, Ohio State Debating League, Ohio Crippled Children's Association, Dr. Robert Boyle, Chief Medical Officer of Fort Thomas Veterans Hospital, Lost Cord Clubs of Cleveland and Columbus, The Desbler-Wallick Hotel, and the Columbus Convention Bureau in making possible a rewarding, happy, and inspiring convention. Each made a contribution that we acknowledge with sincerest gratitude.

Moved by Westlake and seconded by William E. Miller that the report of the Committee on Resolutions be adopted. Passed.

Johnson introduced President-Elect Steer, whose office was to begin on January 1, 1951, and turned the gavel over to him. Steer expressed his gratitude for the honor that had been bestowed upon him, and voiced a hope that the forthcoming year would be as successful as the current year under President Johnson.

Meeting adjourned at 2:15 p. m.

Elections to Membership and Promotions

Acting on the recommendation of the Committee on Credentials, the following were approved by the Council for the various levels of membership as indicated.

The following were elected to the status of Professional Member:

Avery, Charlotte B.
Boomsliter, Paul E.
Breakey, Margaret R.
Britton, Dorothy
Card, Robert F.
Cavender, Betty Jane
Cypreansen, Lucile
Duffey, William R.
Falconer, George A.
Fitch, Waring J.
Gens, George W.
Gilbert, Edna E.
Gordon, Evelyne Frances
Haskins, Harriet L.
Houchin, Thomas Douglas
Knight, Helen Sullivan
Krantz, Henrietta C.
Larr, Alfred L.
Larson, Laila Louise
Lillywhite, Herold
Montgomery, John R.
Parry, Richard A.
Scheifelbusch, Richard L.
Shnaider, Borah
Smith, Loretta Wagner
Sokolnicki, Alfred John
Streng, Alice
Swengel, Beulah W.

Sydney, Ruth Ann
Trepel, Doris
Waldrop, Wiliam F.
Zimmer, Catherine H.

The following were elected to the status of Clinical Member:

Adler, Belle
Ahlberg, Verne
Ahrendts, H. L.
Ames, Nora S.
Anderman, Bernard M.
Ashmore, Lear Lee
Atkins, Beaufert J.
Atkinson, Chester J.
Austin, Helen Hawn
Baar, Blanch
Bache-Wiig, Barbara Jordan
Bagby, June Stribling
Baker, Elmer E., Jr.
Barnes, Mary Louise
Battin, R. Ray
Bearse, Loyal Myron
Betts, Mary Lucy
Bibey, Marjorie Lois
Blasier, Martha H.
Boland, Lillian Canon
Brandow, Dorothy Mae
Brigance, Shirley Jane
Brown, Irvin
Campbell, Charles William
Carlson, Marilyn Joan
Carlton, Robert L.
Clark, Pauline Stevenson
Cohen, Martin
Coleman, Floy
Connor, H. B. Russell
Cousins, Helen
Craig, Irvin M.
Crawford, Norman Patterson
Davis, Robert W.
DeVoe, Anne Shatlock
Doane, Glenna B.
Douglass, Ernest
Dunlap, Ernestine B.
Dunsworth, John
Eble, Peggy Leach
Essex, Nan O'Connor
Feather, Jean Geyer
Fletcher, William W.
Flint, Elmerine S.
Flower, Richard
Forster, Charlotte E.
Fothergill, Patti Murray
Fox, Lester
Frangioni, Irene H.
Friedman, Minnie Samet
Frisch, Helen F.
Garner, Dwight L.
Geer, William C.
Gibbs, David E.
Giordano, Rosalie T.
Graham, A. Bruce
Green, Muriel
Halfond, Murray M.
Hammer, Mariann T.
Hammer, Ruth Nadine
Hanning, Luella Marie
Hansen, Norma Lucille
Harbold, George J.
Harris, Willie Viola
Harrison, Peggy Rosina
Hayes, Claude S.
Hess, Donald A.
Hicks, Audrey Cornelia
Hirsch, Jean Gustine
Horean, William J.
House, Erma Althea
Hughes, Mildred Ruth
Hurwitz, Muriel
Hyman, Melvin
Hymans, H. Harbold
Ickes, William K.
Jennings, Charles L.
Jones, Barbara Ann
Johnson, Albert F.
Kennedy, Mary Stonum
Knearl, Cora Belle
Knight, Marion Hutchinson
Koel, Elaine Glasser
Kurtzrock, George H.
Lambert, James David
Lampe, Henrica Cervina
Lawrence, Clifton F.
Lewis, Dorothy J.
Lewis, Nena Kate Ramsey
Lillibridge, Ruth L.
Luper, Harold L.
Lyons, Kathleen H.
Melrose, Jay
Miller, Earl L.
Morris, Martha Jane
Motta, Ann R.
Musin, Charlotte Hammes
Myrick, Ruth L.
Nichols, Dean G.
Nobile, Virginia R.
Oberhelman, Arlene
O'Gara, Margaret
Onesti, Sylvia J.
Overstake, Charles Perry
Pancake, Julia Wilson
Perkins, William H.
Pollen, Madlyn S.
Pree, Georgene
Prescott, Helen S.
Pritchett, Edward Milo
Ptacek, Paul H.

Rainey, Margaret Isabel
Randall, Esther F.
Redfield, Joy Anne
Rosen, Jerald E.
Rosenberg, Norma Kleinman
Russell, Donna M.
Sansone, Rosalie Theresa
Schiefer, Charles R.
Schwartz, Norman E.
Shames, George H.
Shapiro, Esther S.
Skalbeck, Oliver M.
Skenian, Ann Mary
Smith, Ada Gallagher
Smith, Sister Mary Edward, O.S.F.
Spencer, Ellen Marie
Stern, Jeane
Stockwell, Irma
Stoddard, Jane Easton
Sugarman, Beulah
Summers, Raymond Reid
Thurman, Mina Poimboeuf
Tinette, Doris
Ulm, Josephine B.
Vayda, Elaine J.
Walker, Clara Eunice
Weaver, Ella Haith
Weida, Lois Jean
Weller, Eulalia Weller
West, Gertrude M.
Whyte, Martha J.
Wortley, John S.
Wray, Elinor Caroline
Yoakley, Roberta Moore
Zaner, Annette R.

The following were elected by special action to the status of Associate Member:

Bowie, Elizabeth
Hutchison, Jack Harbold
Kavanagh, James F.
King, Paul T.
Kuper, Eolin Catherine
McDonald, James M.

Committee Appointments

Committees (Officers; Editor; President-Elect, chairman)

1. *Stanley H. Ainsworth*
2. *Harlan Bloomer*
3. *Grant Fairbanks*
4. *Ernest H. Henrikson*
5. *George A. Kopp*
6. *M. D. Steer*
7. *Harold Westlake,* Chairman

Nominations (Five immediate past presidents; most recent past president, chairman)

1. Herbert Koepp Baker
2. D. W. Morris
3. Martin F. Palmer
4. Clarence T. Simon
5. Wendell Johnson, Chairman

Budget (President; Editor; Secretary-Treasurer, chairman)

1. *Grant Fairbanks*
2. *M. D. Steer*
3. *George A. Kopp,* Chairman

Liaison (President; Vice-President; Secretary-Treasurer; Editor; elective committee chairmen; Executive Vice-President, chairman)

1. *Harlan H. Bloomer*
2. *Spencer F. Brown*
3. *Raymond Carhart*
4. *Grant Fairbanks*
5. *Margaret E. Hall*
6. *George A. Kopp*
7. *Eugene T. McDonald*
8. *M. D. Steer*
9. *Ernest H. Henrikson,* Chairman

Program for the Twenty-seventh Annual Convention (Appointive members; Vice-President-Elect; Vice-President, chairman)

1. *Stanley H. Ainsworth*
2. Louis M. DiCarlo
3. Jeannette Frasier
4. John H. Gaeth
5. Ira J. Hirsh
6. Leon Lassers
7. Gordon E. Peterson
8. Wilbert Pronovost
9. Hildred Schuell
10. Jayne Shover
11. Jessie J. Villarreal
12. George J. Wischner
13. *Harlan Bloomer,* Chairman

Membership (One appointive member each from speech pathology, audiology, and experimental phonetics; Secretary-Treasurer, chairman)

1. E. Thayer Curry
2. Leo G. Doerfler
3. Jon Eisenson
4. *George A. Kopp,* Chairman

Honors (Four appointive members; President, chairman)

1. Grant Fairbanks
2. S. Richard Silverman
3. Lee Edward Travis
4. Robert West
5. *M. D. Steer,* Chairman

Clinical Certification (Four appointive members each from speech and hearing; elective chairman)

1. Jacqueline Keaster
2. Harriet Green Kopp
3. Frank Lassman
4. Eugene T. McDonald (1952-1955)
5. Darrel J. Mase
6. Robert Milisen
7. S. Richard Silverman
8. Charlotte G. Wells
9. Margaret E. Hall, Chairman (1951)

Clinical Standards in Speech (Four appointive members; elective chairman)

1. Margaret E. Hall
2. Jack Matthews
3. D. C. Spriestersbach
4. Kenneth Scott Wood
5. Eugene T. McDonald, Chairman

Clinical Standards in Hearing (Four appointive members; elective chairman)

1. Merle Ansberry
2. Hallowell Davis
3. LeRoy D. Hedgecock
4. Hayes A. Newby
5. Raymond Carhart, Chairman

Ethical Practice (Four appointive members; elective chairman)

1. James F. Curtis (1951-55)
2. To be appointed
3. S. Richard Silverman (1951-55)
4. Kenneth Scott Wood (1949-53)
5. Spencer F. Brown, Chairman (1951-52)

Speech Correction Fund (Appointive members; President; Secretary-Treasurer; appointive chairman)

1. Herbert Koepp Baker
2. *George A. Kopp*
3. *M. D. Steer*
4. Charles Van Riper
5. Wendell Johnson, Chairman

Terminology (Appointive members; appointive chairman)

1. Norton Canfield (1951-55)
2. Grant Fairbanks (1950-53)
3. William G. Peacher (1950-52)
4. Harry S. Wise (1950-51)
5. Samuel D. Robbins, Chairman (1950-54)

Constitutional Revision (Appointive members; appointive chairman)

1. Mary Huber
2. George A. Kopp
3. Martin F. Palmer
4. Elaine Pagel Paden, Chairman

Special Reorganization Committee (Appointive members; appointive chairman)

1. Raymond Carhart
2. Grant Fairbanks
3. Margaret E. Hall
4. George A. Kopp
5. S. Richard Silverman
6. Robert West
7. Wendell Johnson, Chairman

Advisory to Special Reorganization Committee (Appointive members; appointive chairman)

1. Mildred F. Berry
2. Alan Clemons
3. George A. Kelly
4. Leon Lassers
5. Conrad Wedberg
6. Myfanwy Chapman, Chairman

Exchange of Materials (Appointive members; appointive chairman)

1. John N. Clancy
2. Wilbert Pronovost
3. Albert O. Weissberg
4. Louis M. DiCarlo, Chairman

Mid-Century White House Conference (Appointive members; appointive chairman)

1. Virgil A. Anderson
2. George A. Kopp
3. Darrel J. Mase
4. Hildred Schuell
5. Jayne Shover
6. William G. Wolfe
7. Wendell Johnson, Chairman

Placement Service (Appointive members; appointive chairman)

1. Herbert Koepp Baker
2. Raymond Carhart
3. Margaret E. Hall
4. George A. Kopp
5. Harold Westlake, Chairman

Extract from the Report of the President-Elect

This report of the activities of the President-Elect of the ASHA for the year 1950 is based upon the official charge laid upon this office, as stated in the Constitution of the ASHA, Article IV, Section 3; to wit:

> The President-Elect shall be automatically vested with the full power of the President on the death of the latter, his

impeachment, or his inability to attend to his presidential duties during a convention session for any reason.

Since our esteemed President is neither deceased, impeached, nor disabled, it is herewith reported with pleasure that the duties and responsibilities of this office have been fully discharged in a most agreeable manner.

Extract From the Report of the Vice-President-Elect

Following suggestions made by the Council that suitable convention arrangements be investigated for 1951, a number of organizations were approached about the possibility of a joint meeting with the American Speech and Hearing Association. These organizations include the Acoustical Society of America, The American Academy of Ophthalmology and Otolaryngology, American Medical Association, American Psychological Association, American Academy of Pediatrics, International Council for Exceptional Children, National Educational Association, American Laryngological Association, the Triological Society, and the Speech Association of America. The general tenor of the replies was somewhat discouraging regarding the advisability of attempting such meetings, with the exception of the response from the Speech Association of America. In some instances there were direct refusals, in others there were stipulations for meeting places outside the hotel of the regular convention and other stipulations which presented some undesirable special problems. It was, therefore, my recommendation under date of April 11 that the Council agree to meet with the Speech Association of America at the Stevens Hotel in Chicago in 1951. The dates of this convention are established for December 27, 28, and 29.

Extract from the Report of the Treasurer

Balance Sheet
June 30, 1950

Assets

Cash		$ 45.70
Cash in National Bank of Detroit		12,043.30
Petty Cash Funds		
Exchange Committee	$145.00	
President	100.00	
Editor's Office	150.00	
Wayne University	25.00	
Credentials Committee	25.00	445.00
Accounts Receivable		393.45
Equipment	$423.08	
Less: Reserve for Depreciation	82.84	340.24
Total Assets		$13,267.69

Liabilities

Withholding Tax Payable		$ 2.50
Advances		
From Members	$ 59.05	
From Subscribers	199.93	258.98
Total Liabilities		$ 261.48

Net Worth

Journal of Speech and Hearing Disorders Fund	$5,023.53	
Publications Fund	4,363.61	
General Fund	3,619.07	
Total Net Worth		13,006.21
Total Liabilities Net Worth		$13,267.69

EXTRACT FROM THE REPORT OF THE EDITOR

Number of pages devoted to different types of materials during 1950 compared with 1949 totals:

	March	*June*	*Sept.*	*Dec.*	*Direct. Suppl.*	*Monog. Suppl.*	*1950 Total*	*1949 Total*
Research and Theoretical Material								
Articles	46	44	63	64		92	309	203
Abstracts	4	9	3	4			20	20
Total	50	53	66	68	—	92	329	223
Practical and Business Material								
Articles	15	24	10	5			54	98
Book Reviews	4	7	5	3			19	21
News	5	8	8	9			30	26
ASHA Business	20	2	5	9	47		83	75
Total	44	41	28	26	47	—	186	220
Front Matter	2	2	2	2	2	3	13	
Total	96	96	96	96	49	95	538	443

Manuscripts read and rejected—11

Number of pages devoted to different types of articles, 1949-50 compared with 1947-48:

	Speech Disorders	*Hearing Disorders*	*Science*	*General*	*Total*
Original Research					
1947-48	103	38	30		171
1949-50	154	43	82	7	286
Theory					
1947-48	195	30		10	235
1949-50	93	125	3		221
Clinical Techniques					
1947-48	125	17			142
1949-50	82	4	6	10	102
Administrative Problems					
1947-48	40			3	43
1949-50	6	18		15	39
Bibliography					
1947-48	3				3
1949-50				7	7
Amphibian Phoniatry					
1947-48			3		3
1949-50					
Total					
1947-48	466	85	33	13	597
1949-50	335	190	91	39	655